

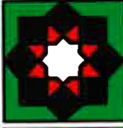


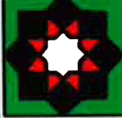


State of Kuwait
Series of Publications of
Islamic Organization For Medical Sciences
Islam and Recent Medical Problems

Uses of Honey in Islamic Medicine



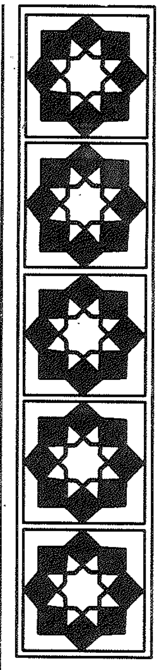






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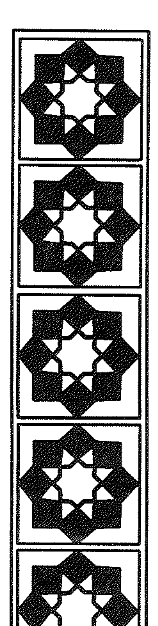
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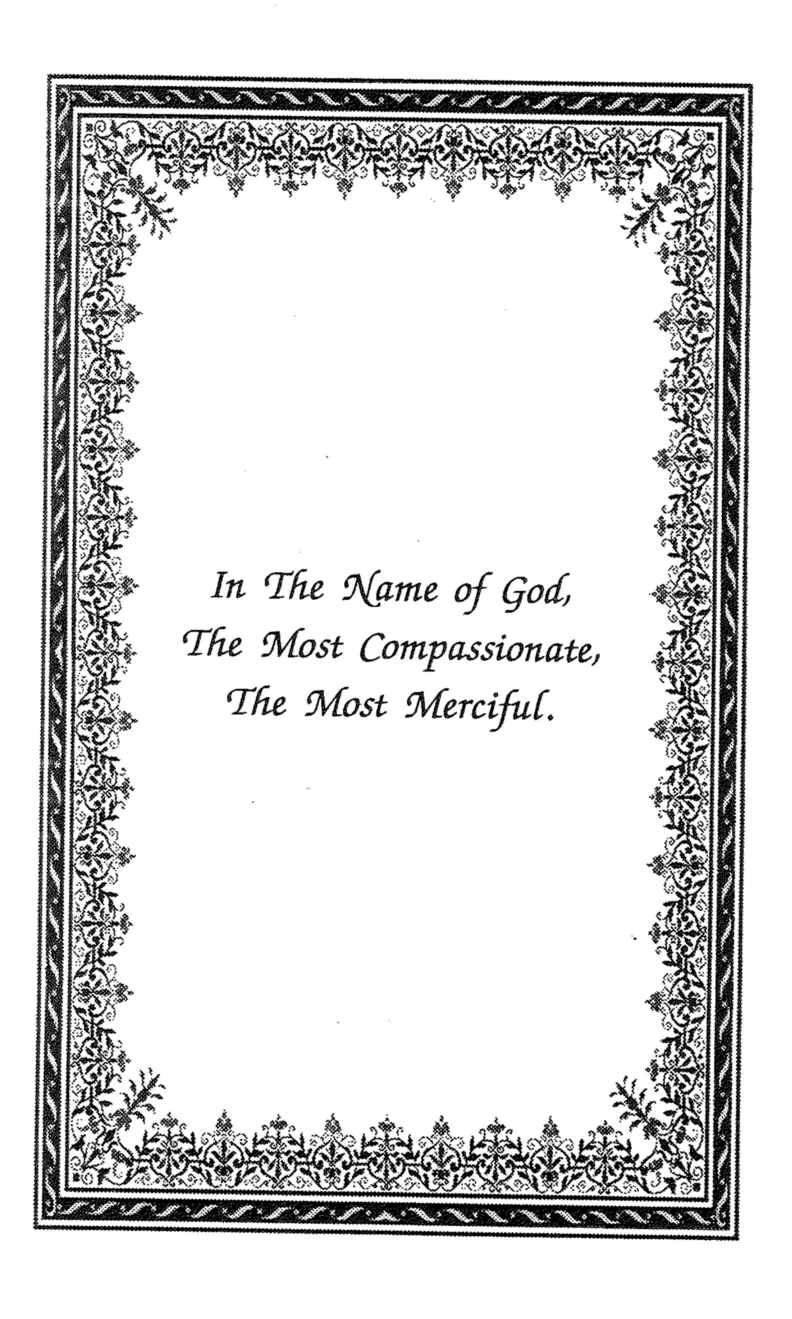
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In The Name of God,
The Most Compassionate,
The Most Merciful.

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PREFACE

Dr. Abdul-Rahman A. Al-Awadi
President
Islamic Organization for Medical Sciences
KUWAIT

Thanks to Allah Almighty for guiding us to Islam, enlightening our hearts with true belief, discarding all grief, dispelled worries, and freed our homeland.

This series comes following fifteen years of the idea of establishing the Islamic Organization for Medical Sciences and after its participation in local and regional book exhibitions where our volumes of Islamic Medicine were greatly appreciated by the visitors. However, because of the soaring cost of paper and publication, the individual book keeping has become very difficult, especially in the non-Gulf Arabic and Islamic countries, as bread earning receives the first priority of the inhabitants of these countries. Keeping in view the fact that the individuals need to be informed, and educated, of the important matter to make them effective member of their community and also a messenger to other communities, it is vital to provide them the contents of these conferences in a simplified way to enable them to carry along and comprehend the scientific purport.

In order to facilitate the possession of these books by the individuals, the Islamic Organization for Medical Sciences has decided to issue a series of publications under the title "The Cultural Series of the Islamic Organization for Medical Sciences". Although the Organization is shouldering the largest share of the cost of production and publication of these books, still these are out of reach of a large section of Muslim individuals, due to escalating cost of living. The great sum of money available to the Organization is spent in bringing together and collecting the prominent thinkers of our

Islamic nation in order to achieve appropriate opinions and covisions of the Islamic Scientists about right topics that need insight and the true objective word. And, subsequently, to present this information to every individual willing to increase his/her knowledge about the doctrinal writings in scientific medicine, as this prominent group of writers/thinkers sees this as an ordinance and a religious obligation to provide for all the Muslims, and to disseminate the message to the largest number of the people of this nation.

This series will include a group of books, each dealing with specific topic, as collected from the articles written under the respective domains and previously published in the Proceedings of the Islamic Medicine Conferences held under the auspices of the Organization. Moreover, all these publications shall remain concerned with one vital topic, that is, the Islamic Medicine. By doing so, we hope to have shouldered the burden off the Arabic/Islamic reader to enable him/her to own the right material and hoping to have clarified a lot of mystery about the subject of Islamic Medicine to the Muslim and Arab readers.

Herein, I beseech Allah to guide our steps to what He likes and approves of.

INTRODUCTION

Dr. Ahmad Rajai El-Gindy
Secretary General Assistant
Islamic Organization for Medical Sciences,
KUWAIT

Thanks to Allah, the Almighty; the thanks of the grateful, the obedient, and the desirous of His forgiveness and retribution, beseeching him, to guide us to the right deeds, with praying and blessing his illiterate prophet (ﷺ) who said,

> *"When Adam's son dies, everything is separated from him except for three things, a current charitable deed, a righteous boy praying for him, and a useful science."*

We pray to Allah that these series of publications will be of scientific use to the Muslims in particular, and to humanity in general.

This introduction will be included in all the publications of this series in order to acquaint the reader, who wishes to acquire one or more parts of it, with the objectives of the Organization, and the reasons behind its being established. We wanted to put down these words to the readers concerned about what we did, while the second part of this introduction will be specifically written for each book, including a summary of the researches therein.

Since the emergence of the idea of the Islamic Medicine fifteen years ago, the discussion of the meaning of "ISLAMIC MEDICINE" did not stop; the people argued: Is there an "Islamic" and "a non-Islamic" Medicine? and we found ourselves in front of three opinions:-

The first opinion:-Medicine is a human heritage; inherited successively by generations, and it is a human experience, acquired by technical and scientific practice, and religion has no role in it, and there is no need to indulge Islam in this subject to protect it from human practices.

The second opinion:- Islamic medicine means nothing to them except it is a past heritage, and we do not need it now because the world is talking about organs transplantation, genetic engineering, Lazer beams... etc. They even considered it a call of underdevelopment, and we have to put it behind closed doors; those are who don't want Islam to be mentioned at all.

The third opinion:- Although medicine is human practices and experiences, but every religion and every heavenly message has its own nature, ethics and practices which are derived from its teachings, and which adds to it its own style. The Islamic era was characterized with a comprehensive change in both the concepts and practices of the people; these concepts and practices were derived from the Holy Quran and the honored Sunna, and were followed by the Orthodox Caliphs, which produced a good harvest, with which they ruled the world, east and west with a civilization - Man was its master, good science its way and the strong belief its pillars. This civilization lasted for five complete centuries, and it was never stingy with its knowledge and arts on humanity.

For there is no favor of an Arab on a Persian, nor of a white man on a black man except by piety and good deeds, this was said by the enemies before the friends; and (Sarton's) testimony in his encyclopedia, the history of sciences, is the best evidence; (Sarton) divided the world into eras of civilizations like the Pharonic, the Babylonian, the Somarian, the Chinese, the Greek, then the Islamic Civilization which flourished in all walks of Arts and Sciences for five consecutive centuries, and in it were eminent scientists, thinkers, philosophers, physicians, pharmacists, engineers, Algebra's, Astronomers, Agriculturists, and people of thoughts who were distinguished with their excellence in the Divine Law, besides the cosmetic sciences.

To all these we say, our view of this topic is derived from Islamic Law, which came with its five goals, which are sustaining the religion,

the mind, the self, the honor and the wealth. If we studied these goals, we'll find that three of them are concerned with Man's well being; that is the mind, the self and the honor, as for the other two, they are concerned with man's health, as there is no keeping of religion, nor of wealth without a strong good Muslim (The best one to hire is the strong and honorable). The prophet (ﷺ) defined three main points, if provided in any MAN, he will lead a very happy life, as he (ﷺ) says

"The one who sleeps secured in his bed, healthy in body, well provided for his day's food, ... he is like the one who owned the entire world."

In other words, he has got social, health and psychological security. Thus the Islamic Law talks about well being in its widest range. "The strong believer is more loved by Allah than the weak one, and both are good." The Islamic Law did not speak about medicine in its narrow sense, through which the others are trying to attack us, but medicine is the means of health, and Al-Ghazaly, a Muslim religious leader, considered medicine as a religious ordinance in all Muslim homes.

Islam considers enjoying a good health one of the biggest blessings of Allah; as mentioned in the wise saying of the prophet (ﷺ), "*Two blessings many people are not endowed with; health and leisure time*". These two blessings are two of the very important duties that must be kept by man as the Islamic rule says, "Whatever is not perfect without a duty, is itself a duty", thus man is not allowed to neglect his health, as it should not be neglected, because this is considered an aggression on the whole nation as it is so mentioned in the Holy Quran:-

"FOR THAT ACCOUNT WE ORDAINED FOR THE CHILDREN OF ISRAEL THAT IF ANY ONE SLEW A PERSON - UNLESS IT BE FOR MURDER OR FOR SPREADING MISCHIEF IN THE LAND - IT WOULD BE AS IF HE SLEW THE WHOLE PEOPLE, AND IF ANY

ONE SAVED A LIFE, IT WOULD BE AS IF HE SAVED THE LIFE OF THE WHOLE PEOPLE"

(Al-Maeeda: 32).

Abu-Bakr, (رضي الله عنه) said "I heard the prophet of Allah (ﷺ), saying, *"Ask Allah for certainty and health, for they are the best blessings bestowed on man is being healthy after being certain"*; thus self-relief is the true gate to health; either psychological or bodily health, their only true gate is strong belief, belief in slavery to Allah, whatever inflicts you was not to wrong you, and whatever to wrong you, was not to inflict you.

The belief in the acts of worship which are prescribed by Islam are:-

Prayer is secret talk with Allah Almighty, and self purification five times a day standing in front of the Creator,

Fasting is self restrain from evil desires, and true feeling of the hunger of the Muslim brother who is deprived of a morsel of bread,

Zakat or *Alms* is a sacrifice, self cleanliness, and development,

Haj is a migration to Allah and his prophet, (ﷺ), leaving everything - power, wealth, prosperity and living in complete humbleness and slavery, equal with your kin Muslim... as it is said; "No Arabic is better than a non-Arabic, nor a white is better than a black man except by piety", and these acts of worship protects and restrains man from evil doings, thus leaving them will lead to the spread of evil deeds and man will gain nothing but punishment for what he had done.

In order to complete the building of man and society, and to achieve the goals of Islamic Law, the doctrines of lawful and unlawful were put down to guide man to the right road and bestow happiness on him; as in the lawful deeds man will find his happiness, and in unlawful deeds he will be perished; thus the prohibition of drinking alcoholic drinks, and all ways leading to it, as prescribed by Allah was for the protection of man's mind and body, the society from diseases and the consequences of

the absence of his mind, the prohibition of adultery, and all ways leading to it, wanton display of beauty, solitude with a woman, and libertinism... etc, was prescribed to protect the family and the whole society from dissociation and mixing of lineage which destroy the society, thus the philosophy of prohibition in Islam is meant for the prevention of harms to man himself and to others as well.

Thus, it is clear that the goals of Islamic Law (Sharia) can not be achieved without good health and well being, as Abu-Al-Dardaa said to the prophet, (ﷺ), "To be healthy and grateful, is much more better than to be ill and endure patiently", the prophet (ﷺ) answered him by saying, *"Allah loves healthy people, as you do".*

That is not all, but Islam's view of the sick and sickness has overrun all that preceded it and whatever followed from laws or social systems, as Islam does not see sickness as an anger of Allah, or a touch of the devil, but a trial, and the Muslim has to be patient and bear it with patience as the Prophet (ﷺ) said,

> *"Any kind of sadness or grief or even the prick of a thorn that inflicts man is a blessing from Allah as He raises him a degree higher or takes from his bad deeds instead".*

The Holy Quran came to the world with statements about the inner self, this was fourteen centuries ago, and it put to it four marvelous divisions in various parts of the Holy Quran, thus the world knew about the peaceful innersoul, the lamenting innersoul, and the authoritative innersoul. Abu-Hamid Al-Ghazally, has delved deep in the inner-self in his encyclopedia "The Revival of religious sciences", under the heading" Fear and Request", as the Holy Quran talked about the ailments of the heart, and their different kinds, as it was mentioned by Imam Al-Zahaby in his book "The Prophetic Medicine".

As for the medicine of the heart, it is only found in the sayings of the benevolent and kind Prophet (ﷺ), when he quoted Allah, the only source of all knowledge, he says that for the hearts to be righteous, it

must know its creator, His names, characteristics, deeds, orders, and prohibitions and anger, as there is no way of being righteous except by doing this, and no way of getting these advice except from Mohammed (ﷺ).

Imam Ibn Kerium Al-Jozeiah has divided the hearts into two divisions: suspicion and doubt, and desire and error. He quoted the Holy Quran as saying,

"IN THEIR HEARTS IS A DISEASE; AND GOD HAS INCREASED THEIR DISEASE".

(Al-Baqarah: 10), and:

"O CONSORTS OF THE PROPHET! YE ARE NOT LIKE ANY OF THE OTHER WOMEN: IF YE DO FEAR (GOD), BE NOT TOO COMPLAISANT OF SPEECH, LEST ONE IN WHOSE HEART IS A DISEASE SHOULD BE MOVED WITH DESIRE"

(Al-Ahzaab: 32).

The Quran described the inner-self when horrified or frightened, and how to make it peaceful again in His very simple and clear words:

"TRULY MAN WAS CREATED VERY IMPATIENT; FRETFUL WHEN EVIL TOUCHES HIM; AND NIGGARDLY WHEN GOOD REACHES HIM; NOT SO THOSE DEVOTED TO PRAYER: THOSE WHO REMAIN STEADFAST TO THEIR PRAYER; AND THOSE WHOSE WEALTH IS A RECOGNIZED RIGHT FOR THE NEEDY WHO ASKS AND HIM WHO IS DEPRIVED (FOR SOME REASON FROM ASKING) AND THOSE WHO HOLD TO THE TRUTH OF THE DAY OF JUDGMENT; AND THOSE WHO FEAR THE DISPLEASURE OF THEIR LORD, FOR THEIR LORD'S DISPLEASURE IS THE OPPOSITE OF PEACE AND TRANQUILLITY."

[Al-Maarij: 19-28].

This is how Islam considers health, which was defined by the prince of Islamic physicians: Ibn-Sina by saying: "Medicine is the science by which the human body is known, and what is good and what is not for being healthy or otherwise." This comprehensive definition which was introduced more than one thousand years ago, is nowadays adopted by the WHO, that health is the state of the healthy body, mind and society, not only the lack of diseases or inability.

In spite of this definition of the WHO, during the forties, it ignored the spiritual side, which shows the lack of a comprehensive view of Islam about health, as Islam defines health from all domains, bodily, spiritually, psychologically and socially, and this last definition came 14 centuries ago, by the Muslim physicians.

To reach these noble goals, and great objectives for the Lord's heir on earth, there had to be a way to keep man healthy, and this is by the science of medication which was considered by the Muslim religious scientists an ordinance in the Islamic world, and Imam Al-Shafeiy said about it; "There is no knowledge, better than the prohibited, and non-prohibited acts, to my knowledge, except the science of medication". Dawood Al-Antaky in the introduction to his famous prescription says that there is no science that can do without the science of medication, because no acquisition of any knowledge is perfected without a sound body, senses, and mind.

Islam has taken good care of the different branches of medication; protective, preventive, an rehabilitative; in the protective, many sayings of the prophet (ﷺ), called for protection, in order to keep health in all its branches - cleanliness, food organization, and many healthy habits, as well, the researches in this domain is varied and all are derived from the prophet's (ﷺ) wise sayings, no need to repeat them here.

As for the treatment side Islam legalized medication, and the prophet (ﷺ) ordered medication and looking for it when he (ﷺ) said:

"Ye believers, get treatment, the Lord created no disease

without its medicine, known to those who know and ignorance to those who don't know".

As for rehabilitation, we are asked to look for it, he allowed one of his disciples to put a piece of gold on his lost nose during his invasions.

As for the three opinions pre-mentioned concerning the definition:-

To the first group we say: Medication is a human heritage and contribution, but the human thinking has deviated from the right path, and religion is in the church and in the mosque or the temple, due to their sufferings from the control of the church over medication and sciences, and making them only for the priests, medication did not develop, and the ship of science sank deep with its arsenal of destruction, thus they produced the microbial bombs, and medication turned into fatal poison; instead of relieving pains, and becoming a tool of the Lord's benevolence, it became devastatingly harmful, and the brother became keen on eliminating his human brother, and the call for killing substituted the call for mercy, the organs began to be sold, and man was transferred from the master of earth to a sample in labs, and source of trade .... etc. the list is endless.

The best evidence to be quoted here is the saying of Abenhaimar; the father of the atomic bomb, when he saw it explode in Hiroshima from a distance, he said his famous words: "Now, and now only, science has sinned".

As for the second group: which said "Islamic medicine is nothing but an ancient memory and a call for underdevelopment.." we say to them that the heritage of any nation is like the roots of a tree, whenever it goes deeper and deeper in history, it becomes firmer and firmer and provides it with the means of living; the invention of genetic engineering, the nuclear bomb, and organ transplantation are not only signs of civilization, but they are the leaves of the tree and its fruits, as civilization is much more wider than that, and cares less with its achievements, but cares more for the achiever, MAN, and cares for

the philosophy of his existence in this world and the hereafter, as well as his ethics and culture.. if he is separated from these, he will be lost for ever. Now although the western man enjoys the highest per capita, and has got every means of prosperity, we find the percentage of suicide going up and up, as well as the addiction of narcotics, drugs... etc. became a daily practice; to enable him to forget and escape from his worries... the western man neglected the spiritual side of feeding his inner-self, and instead tried to feed on earth's food, thus he failed, and was transferred to a cog in a big machine.

This is not only in the west, but it is now prevalent in the east, as well; family relations are severed, social relations collapsed, man changed into a wild beast in a jungle full of fierce animals, each is trying to eat the other. I don't want to say more, it is enough to remind you with the AIDS that is harvesting man's bodies... Nevertheless, no body talks about chastity, virtue or ethics.. but they began to distribute contraceptives, for males and females, as if saying "Do it however, and whenever you want..! but use these contraceptives to protect you from the AIDS..!" Is this the Islamic way or attitude towards the man, whom it honored and asked to walk and learn and enjoy the fruits of life. Man asks, as many asked before about health and happiness, in spite of his materialistic progress and scientific development in all fields of medicine and protective treatments.

Islam gave due attention to man's environment, and warned him against corruption and doing mischief, as both affect his health, the Lord's words describe what happened all over world from corrupting the environment, which threatens man's life as He said' "CORRUPTION HAS APPEARED ON LAND AND IN SEA ON THE HANDS OF MAN, TO MAKE HIM TASTE SOME OF HIS DOINGS, HOPING HE MIGHT RETURN TO RIGHTEOUSNESS", and He orders us not to do mischief by saying, "DON'T CORRUPT THE EARTH AFTER IT HAS BEEN RECLAIMED." Corruption here, I believe is both materialistic and

ethical; as material corruption includes mischief on earth and around it, and ethical corruption means self and moral corruption.

To add to all these views that each civilization has its characteristics, its features, its morals, and its practices, Islam is unique in this, as Islam sees man as a whole, body and soul in full balance, none overweighs the other, as he did not worship the material, nor invented priesthood. Islam has taken care of man before he was born, when choosing a wife or a husband, at marriage, when he was a sperm drop, a baby, young, and old, Islam put to him a very accurate disciple system of life, taught him how to eat, drink, dress, treat himself, his Lord, his family, and his community. Islam has put to him goals in life - as it is a farm for the hereafter, to harvest from what his hands grew, and Islam was able to introduce a civilization to the world, with which Europe progressed from its dark ages with the help of the Islamic doctrines, but the Muslims slackened down and left Europe to lead the ship of scientific development. It may be that our interest in calling medicine by the Islamic Medicine, came as a symbol to awaken the Islamic world, and tell them that there is a lot in Islam in all fields; economics, architecture, arts, cosmetic, medical... etc. and their commitment to Islam will bear fruits, too. One objective of choosing this name to medicine is the human deviations in practicing medicine in the West, but the East has to have a loud voice to awaken it and shake it; that is the voice of Islam, by providing the right opinion in these practices, especially when we lost the lead of materialistic science, but we can still provide it with what purifies them and saves them from deviation, this is by means of the enlightened Islamic views. Moreover, the communication revolution has made the world a small village, knowing what happens all over it by the second... these developments are knocking our doors, thus we must be aware of it and give the Islamic view point in it, showing the advantage of Islam which differentiates between what is right from what is not.

The Lord knows what the inner-self whispers, as He is nearer to

him than his vein, and He is the maker of his inner-self, and He directed him to his success, as He says'

"BY THE SOUL, AND THE PROPORTION AND ORDER GIVEN TO IT. AND ITS ENLIGHTENMENT AS TO ITS WRONG AND ITS RIGHT. TRULY HE SUCCEEDS THAT PURIFIES IT, AND HE FAILS THAT CORRUPTS IT".

(Al-Shams: 7).

The Almighty knows what the corrupt eye sees and what is hidden in the hearts.

Some people suggested that we call it THE ARABIC MEDICINE, in order not to distort the picture of Islam, as a result of misdemeanor of some practitioners, but this name might lead to the understanding of the use of medicinal plants and ancient medication practices, and this has its shortages, as well as its advantages, too, and because most of those who enriched the Islamic movement were not from the Arabic environment, like Al-Razy - from Al-Rey, Ibn-Sina - from Russia, and Al-Bukhary - from Tashkand... etc and thus we'll enter into the vertigo of apartheid, but Islam had engulfed them all. Moreover, if we want to discuss the point of view of Islam in modern things, on what ground shall we argue? Are there Arabic foundations? or, all the foundations taken from the Islamic Law (Shareeaa)? Thus the best name was "THE ISLAMIC MEDICINE", which is nearer to the fact, as for the fear of the misbehaviors, which might be alluded to Islam, wrongly, we know that all Adam's sons are sinners, and the best sinners are the repentants, we are in a stage trying to erase eras of Islamic decay and weakness, we want to contribute to Islam and to be affiliated to it again, as well as to revive its name and face all over the world, and to prove that its doctrines are applicable, and their consequences are guarantee for man's well being and prosperity.

The Organization aims, also, at retrieving the Islamic behavior which was defined to Man by Islam, and make part and parcel of his daily conduct; if cleanliness, for example, is part of the belief, as said by

the prophet (ﷺ), we find our Islamic states are the least countries enjoying and abiding by this Islamic ordinance, although it is the main road to health, and there are many wise sayings which organize the life of the Christians as well as the Muslims in order to lead a healthy and clean life, in the same way the orders and prescriptions in Islam are all related to man's psychological, social and body health; like prayer, fasting, Zakat, Haj, and others of the ordinances that have spiritual meanings which invests in Man tranquility and protects him form psychological and body diseases. There are many researches reinforcing these hypotheses, and the things that Islam forbids us from doing are essentially for our sake, we are not far away from what the world is suffering from narcotics, alcoholic drinks and AIDS which Islam prohibited.

We also wanted to utilize the plants which we have as a gift from the Lord, and Muslims have surpassed the world in this field, thus they kept their heritage of plants for the future generations, moreover they added and developed it. They wrote many books from which the Europeans took and translated and utilized till the 19th century; all their experiments and observations built on high scientific standards: Al-Hawy is considered the first scientific clinical encyclopedia in the history of the medical sciences.

Islamic civilization, at that time, was able to open its arms welcoming every active worker, Muslim or non-Muslim, as Islam has no discrimination, and no coercion in religion, no one is better than the other except by worship and good deeds, thus scientists migrated to it from east and west to add to its sciences.

I'll mention here, only, the testimonies of some Western scientists for the Islamic civilization:- "Froje Garoody" talks with sadness and grief about western Civilization; he said. "The Western civilization is dying and committing suicide because it deviated from following the natural disposition; the instinct, and its masters considered man the director of the nature which he ruled, but after five centuries of the

experience we found out that Nature is the main store of the primary materials and the place for man's leftovers, this made us always destroy nature, and this is against what the Holy Quran decided, as it decided that man is the Lord's heir on earth, and man is concerned with keeping natural balance"; then he says; "Our present western civilization is dying, not because it is short of means, but because it lacks goals". Man began to threaten himself with annihilation, and the result is the destructive weapons that man possesses are enough to destroy the planet earth one hundred times, what poor creatures we are!

This civilization is carrying in its womb the causes of its destruction, on the contrary of the Islamic civilization because the Islamic civilization is coming from the Lord who made it, not man, nor is the Islamic civilization an extension of history, but a revelation from the Lord to His prophet (ﷺ) through the Holy Quran, dictating a Holy Constitution satisfying the body and the spiritual needs of the human beings, then following this came the wise sayings of the prophet (ﷺ) to explain the Quranic doctrine, thus everything became clear, the lawful is clear and the unlawful is clear, and the difference between them is clear. The world is about to face a crisis due to its losses from addictions, as the costs of these addictions reached 14 billion $ in one year in the USA only, and these losses were in work hours, accidents, family problems... etc. due to the addiction of narcotics or alcoholic drinks, which Islam prohibited. This big sum of lost money is more than the revenue of many countries, and the world will face more than 40 million individuals inflicted with AIDS by the year 2000, and 10 million orphans; the WHO estimates the number will be doubled, nevertheless, virtue is absent, chastity killed, and they don't know where they are going... and no body knows!

Max Mayerhoof testifies: "The Islamic medicine has reflected the sun shine which was setting in Greece, and the moon glittered in the sky of the dark ages, and other stars brightened by themselves and lit

the gloomy dark sky, then the moon went down and the light of the stars waned in the revival age, but their traces are still there, to be felt in the civilization of today.."

Montgomry Watt said; "I'm not going to look at Muslims as a barbaric army invading Europe, but I'll consider them the representatives of a civilization which achieved great successes all over the world, spread them to their neighbors. The Europeans are not appreciating their debt to the Islamic Civilization!! They even try to find faults with the volume of the Islamic effect and its importance in our cultural heritage, forgetting, again, that our good relations with the Arabs and the other Islamic nations calls upon us to be aware, to the end, that we owe them, not to mention this truth, or its denial is not right..."

Montgomry Watt didn't stop at that, but he added, "Our following the Arabic Medicine, which lasted till the 15th and the 16th centuries is evidently clear in the printed books, and the first of these books was explanations of the 9th chapter of the Principles of Al-Razy, then followed the printing of Ibn-Sina for three times, before Galinos, and till the year 1500 sixteen editions of "Al-Kanoon", the "Law". The statistics show that the quotations and extracts found in the early European writings are evidence that the impact of the Arabic books surpassed and surmounted the Greek one.

He says, too, "Islam in essence is not only a mere religious movement, but it is also a human value embedded in life of the peoples who embraced Islam, or joined it, it was a kind of unique human existence in the world as the conditions of the Islamic openings were to permit the other people to continue practicing their former habits, laws, and languages, for paying taxes (Jiziah), these Islamic rules strengthened the relations between the Muslims and the peoples of the countries they conquered, thus the people continued to practice sciences, arts and especially medication.

These three testimonies are only a sample, there are a lot of others

for which there is no space to quote here, but in time we will.

In addition to this, the last WHO statistics mention that 25-30% of the diseases from which man suffers nowadays are caused by the side effects of the chemical medicines, as well as their high prices, and the expertise which they need to manufacture. Contrarily, however, our Islamic countries enjoy a suitable weather for the medicinal plants to grow and treat a lot of diseases. All we need are issuing political decrees as China and India and other nations which produce these medications in the most modern fashion.

This is a short synopsis about the idea of Islamic Medicine, and to reinforce this idea, we invited a group of Muslim thinkers to take part in many conferences to write in this field, and we have received a lot of their contributions which will be published in due course of time, under different headings.

SUMMARY OF THE RESEARCHES IN THIS BOOK

This book embodies twelve research publications including five abstracts, the full text of which appear in the Arabic version of this issue. These papers deal with the experimental and clinical studies on therapeutic potential of honey in varions ailments.

The first two papers are devoted to the clinical evaluation of honey in gastrointestinal disorders such as gastritis, gastric erosion, duodenitis, duodenal ucer, pyloric spasm, and in chronic nonspecific diarrhoea. The results of limited clinical trials are quite encouraging and deserve to be explored in wider trials.

The next paper deals with the clinical trial of the topical use of honey in the treatment of some ocular diseases such as nonspecific stromal keratitis, post-herpetic stromal keratitis, chronic nonspecific conjunctivitis, xerosis of conjunctiva, and chronic squamous blepharitis. After a 15 days treatment period, over 80% patients were imporved.

Honey has also been tried in patients suffering from chronic bilharzial ulcer bladder. Cytoscopic examination after two months treatment with 15ml honey, daily, orally, and 40ml honey (diluted to 50% with saline water) instilled intravasically twice per week, showed marked imporvement in 43 out of 50 cases, and in 28 patients ulcers healed completely.

In an *in vitro* study, honey has been found to exert antibacterial action on different types of pathogenic organisms isolated from the urine of patients complaining of urinary tract troubles. The types of isolated bacteria in descending freqnency were *E. coli*, *Klebsiella*, *B. proteus*, *Pseudomonas*, *Staphylococci* and *Streptococci*.

Evaluation of the efficacy of honey in experimentally-induced hepatotoxicity in rats revealed that honey exerted hepatoprotective effect as reflected by the liver function test (estimation of SGOT and

SGPT before and after the honey treatment) and the mortality rate, and was indeed found to be superior than the standard control drug hepargen (thiazidin-4-carboxylic acid).

In alloxan-induced diabetes in rabbits, pure honey fron *Apis florea* (small bee) and *Apis dorsata* (large bee) did not produce any hypoglycemic effect. This observation is contarary to the common belief that honey produces hypoglycemic effect. However, this needs to be extended to other models of experimental diabetes using honey from different sources.

Notably, honey from *Apis dorsata/Apis florea* was found to exert wound healing effect in experimentally made wounds in mice. In animals treated with pure honey, the wound healing was much faster without leaving any scars. And, in this respect, orally administered honey was more effective than that applied externally.

In experimentally induced gastric ulcer in mice, true and false honey (which is obtained from feeding the bees on sugar solution) produced curative effect. However, the true honey obtained from the nectar of flowers was much more effective than the false honey. In a separate study, the two types of honey also exerted protective effect against digoxin - induced toxicity in mice.

In a comparative clinical study using savlon and honey in patients with septic wounds, honey was found to produce better effect than savlon, in that, with the application of honey wounds became free of microbes faster than those treated with savlon, the mean duration being about 5 and 7 days, respectively.

Beneficial effect of honey has also been found in healing of obstinate wounds resulting from excision of cervical tumors associated with malnutrition, diabetes or from exposure to rays before excision which results into severe pertinaceous suppurative wounds. These patients had not responded, for four weeks, to any medication including the antiseptics and antibiotics. Thereafter, honey was applied locally and the progress followed clinically,

bacteriologically and histologically. After one week, the wounds became aseptic, since no microbes could be isolated, and completely healed in 2-6 weeks. Histologically, the tissues became better, the blood vessels appeared and granulation occured in 3 weeks time.



HONEY REGIMEN IN GASTROINTESTINAL DISORDERS

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HONEY REGIMEN IN GASTROINTESTINAL DISORDERS*

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INTRODUCTION

The first documented case report about honey treatment of gastro-intestinal disorders came in Bukhari and Moslem Hadith Books of our gracious prophet Mohammed (ﷺ) as follows:

> *"A man came to him asking his advice to treat his brother who was suffering from diarrhoea. The prophet (ﷺ) told that man to give his brother honey to drink. The man went back and gave his sick brother honey. But without response. He asked the prophet (ﷺ) again, who advised him to try honey again. For the second time, the man did not respond and his brother returned to the prophet (ﷺ) for a third time. The prophet (ﷺ) pronounced that God said the truth about honey, but your ill brother's abdomen lied. Go back and let him drink honey. This time the ill man recovered".*

Ever since Moslems and Arabs used honey to treat different types of illnesses[1]. However, many scientific approaches to document the efficiency of honey in diarrhoea, abdominal colic, chest affection, skin diseases... etc. have been attempted.[2, 3]

This paper is an attempt to verify the value of honey in the management of upper gastrointestinal dyspepsia including peptic ulceration.

* Bulletin of Islamic Medicine, Vol. 1, 358 - 362, 1981.

PATIENTS AND METHODS

Forty-five consecutive patients suffering from dyspepsia were seen and followed-up at the gastroenterology research unit in Cairo for a six-month period, Nov. 79 - April 80. Diagnosis of dyspepsia was carried out according to the following criteria:

"Clinical evaluation, laboratory investigation, radiological examination and upper gastrointestinal endoscopy".

These tests were carried at the start of the study and at its end. Every patient was aware of the different aspects of the trial. Two tablespoonfuls of honey (30 ml) were given before meals three times daily. Every patient chose his own honey. No drugs were given during the period of trial, but patients, were put on bland diet. Every patient was seen every month during the follow-up period. Twenty matched patients were treated with placebo tablets and bland diet for three months after which - for ethical reasons - they were treated by conventional medical treatment. However, the study is going on for further evaluation after one year.

RESULTS

Table I shows age and sex distribution of 45 patients included in this study, "26 males and 19 females", the majority of whom belonged to 20-40 yrs. age groups. Upper abdominal pain, and dyspeptic symptoms "flatulence, indigestion, heartburn, eructation, nausea and vomiting" were dominating, whereas haematemesis occurred in 12 patients (27%) only (Table II). More than half of the patients were anaemic and occult blood in stools was found in 82% (Table III). Table IV shows evidence of peptic ulcers/duodenitis and gastritis in 75% and so were the endoscopic findings (Table V). Finally, Table VI shows different criteria of improvement. Clinically two-thirds of the patients recovered and another 7 were relieved. Barium meal and upper endoscopic evaluation showed marked improvement and 5 out of 7 manifested complete ulcer healing. Anaemia was corrected in more than half of the patients. Furthermore, no one showed

haemoglobin percentage below 50%. Occult blood persisted in 4 out of 37 patients.

COMMENTS AND CONCLUSIONS

The data, obtained from the present therapeutic trial, provided substantial evidence that honey has a place in the management of upper gastrointestinal disorders. Furthermore, we have tried honey enemata in cases of ulcerative proctitis with encouraging results, which will be described in a separate communication. It was observed that honey regimen is effective in organic lesions as ulcers and gastritis or duodenitis where the response is dramatic. But patients with functional disorders as cardiac or pyloric spasm responded poorly to honey regimen. Other successful therapeutic trials were employed in the management of heavy metal poisoning and in kidney and liver diseases[4]. Abdel Gaffar and colleagues found that honey regimen modified gastric juice constituents to the benefit of the individual by suppressing hypersecretion of hydrochloric acid and by so doing enhanced healing of peptic ulcers[5].

However, honey may produce favourable effects through the anti-bacterial property. Zawawy has shown the high efficiency of local application of honey in septic wounds and in long standing pyogenic skin ulcers[6]. Such effect might have been achieved because of the high content of dextrose in honey (25-40%), more than any other natural food. However, further work is needed for a better understanding of the mode of action of honey in health and disease.

We may conclude that honey regimen is a useful tool in physicians' hands for the treatment of gastrointestinal diseases. Honey regimen should be the first choice in such problems as it is of natural source, does not have the side effects of drugs, is of high nutrient value and is cheaper than any other form of therapy.

TABLE I:

Age and Sex in 45 Patients

Age in Years	Male	Female	Total
20-30	5	5	10
31-40	9	10	19
Over 40	12	4	16
TOTAL	26	19	45

TABLE II:

Clinical Presentation

Symptoms	Male	Female	Total	Percent
Pain	23	19	42	93
Dyspepsia	22	19	41	90
Vomiting	8	15	23	50
Hoematemesis	5	7	12	27

TABLE III:

Anaemia and Stool Occult Blood

Haemoglobin %	Male	Female	Total	Percent
75-60	13	5	18	40
60-50	5	8	13	28
Below 50	4	6	10	22
Stool occult blood +ve	20	17	37	82
-ve	6	2	8	18

TABLE IV:

Barium Meal Findings

Classification	Male	Female	Total	Percent
Gastritis and/ or erosions	10	10	20	44
Duodenitis	6	1	7	31
Duodenal ulcer	5	2	7	31
Normal	5	6	11	25

TABLE V:

Endoscopic Findings in 45 Patients

Lesion	Male	Female	Total	Percent
Gastritis & Erosions	7	9	16	35
Duodenitis	8	-	8	34
Duodenal ulcer	5	2	7	34
Spasm:Cardiac/ Pyloric	6	8	14	31
Total	26	19	45	

TABLE VI:

Criteria of Response

1. Clinical	Symptom-free	30	66%
	Mild-Moderate	7	16%
	No response	8	18%
2. Endoscopy	Normal	28	62%
	Gastritis / Duodenitis	15	33%
	Ulcer	2 out of 7	
3. Barium Meal	Normal	32	71%
	Gastritis / Duodenitis	12	26%
	Ulcer	1 out of 7	
4. Haemoglobin %	75-60	15	33%
	60-50	7	16%
	Below 50	-	0
5. Stool occult blood +ve		4 out of 37	

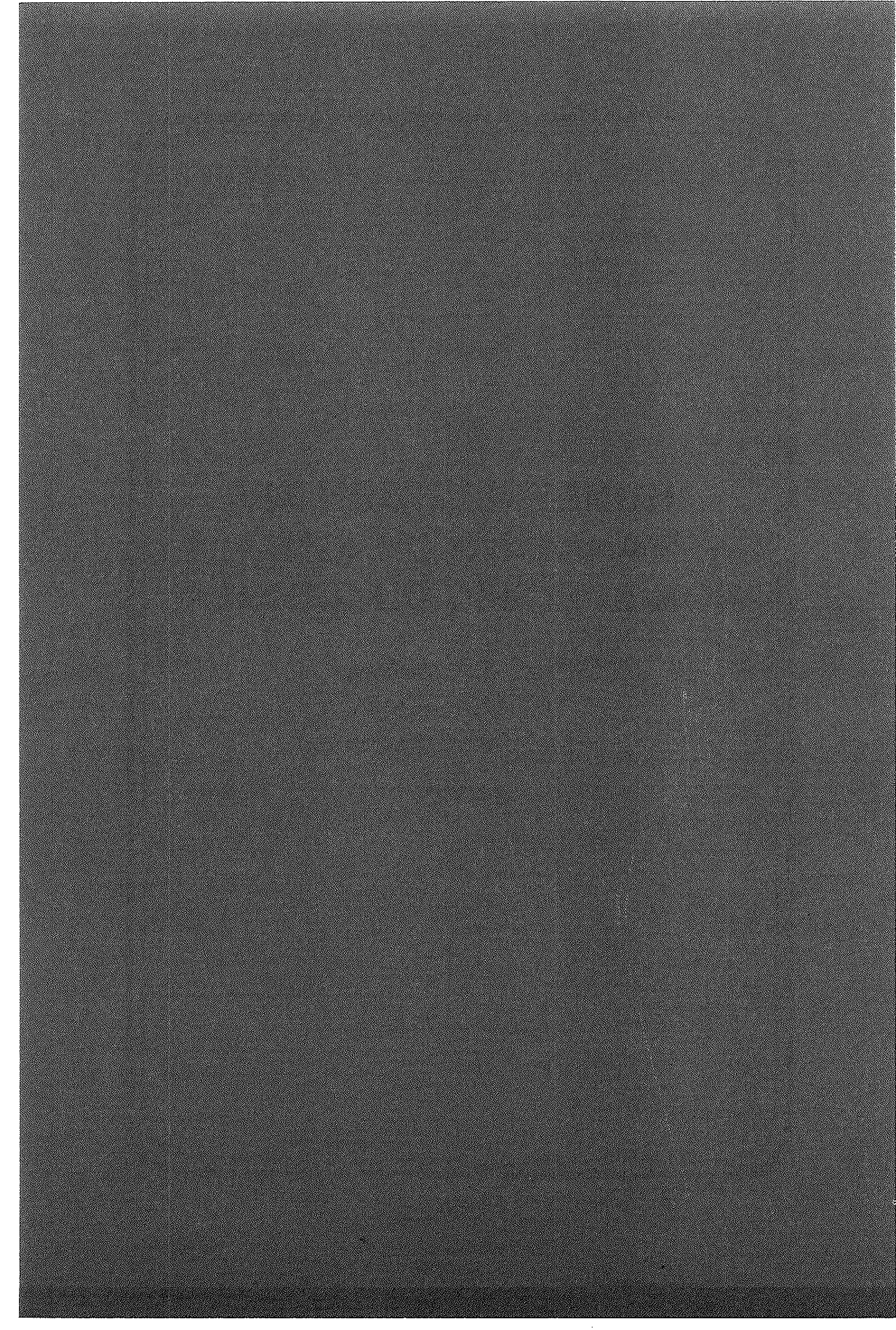
REFERENCES

1. KOTB, S. Thelal-Al-Quran, *Dar of Arabic Traditions*, Beirut, Lebanon, Third edition, 1961. Sura XVI NAHL 69.
2. YUSUF A., *The Holy Quran* (1946). McGregor and Werner Inc., U.S.A. NAHL 69.
3. MUTAWEH, A., Personal Communication (1980).
4. ISMAIL, A., *Islam and Modern Medicine*. Arab Publication Co., Cairo, Egypt. Second edition, 1959. P. 109-110.
5. GHAFFAR, Y.A., Personal Communication, 1980.
6. ZAWAWY, A., Personal Communication, 1980.

HONEY REGIMEN IN MANAGING CHRONIC NON-SPECIFIC DIARRHOEA

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HONEY REGIMEN IN MANAGING CHRONIC NON-SPECIFIC DIARRHOEA*

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There is no contradiction between Islamic teachings and sciences. Moreover, Islam urges its followers to think over and look deeply into scientific matters.[1] Medicine is no exception as our gracious Prophet Muhammad (ﷺ) threw light on some medical problems in order to get benefit and to set up examples for us to follow his steps.[2] In Hadith Sahih, He (ﷺ) said:

"*There is a*[3] *remedy for every disease. If one gets the sound remedy the disease will be eradicated.*"

He, (ﷺ) also said:

"*If there is any goodness in your methods of treatment, that will be in lancet incision, honey or cautery.*"

In a previous work we have used honey for treatment of upper gastro-intestinal disease with good results and presented a paper.[4] In that paper we have quoted the Hadith on diarrhoea and how the Prophet Muhammad (ﷺ) had advised honey for its treatment. In this work we have applied honey regimen for treatment of non-specific chronic diarrhoea and in patients suffering from mild ulcerative colitis with chronic diarrhoea.

PATIENTS AND METHODS

Thirty women aged 18-45 years (mean 28 years) and 23 men aged 31-55 years (mean 39 years) were studied during a 7-months' period (Feb. - Aug. 1981). They were known to us to have chronic nonspecific diarrhoea with the following criteria:[2,6]

* Bulletin of Islamic Medicine, Vol. 2, 411-414, 1982.

1. The patient should have at least 3 motions per day for more than 3 weeks and/or recurrent diarrhoea.
2. There were association of gastro-intestinal symptoms such as diffuse or localised abdominal pain, flatulence, dyspepsia, anal irritation with or without upper gastro-intestinal symptomatology.
3. Absence of systemic diseases.
4. Stool examination (smear and culture) showed no pathogens.
5. Barium enema with double air contrast.
6. Sigmoidoscopy and rectal biopsy examinations ruled out Schistosomal, amoebic, infective or parasitic infestations but may show non-specific inflammation.
7. No, or poor, response to different types of chemotherapy and/or dietary regimen.

All the subjects were outpatients. They were instructed to administer three tablespoonfuls (45 ml.) of fresh honey, before breakfast and at bed-time. No drugs were used and the patients were allowed bland diet. This regimen lasted for 3 weeks and they were followed up for 4 months during which if relapses took place they were advised to repeat the honey regimen for 1-3 weeks.

RESULTS

Fifty-three patients, their age groups and sex distribution are illustrated in Table I. It is observed that the majority of them belonged to the 3rd decade among females and a decade older in males. Table II shows presentation of the patients where it is seen that, besides diarrhoea, many lower and upper gastro-intestinal symptoms are present. Weight loss and abnormal sigmoidoscopic pictures with histological changes of rectal mucosa are seen in nine patients with mild ulcerative colitis. Response to treatment was achieved in 83% of the series (Table III). However, relapses took place in one third of the patients when followed for 4 months, but again responded to fresh

courses of honey. It is of great interest that ulcerative colitis group showed marked improvement, not only clinical but also sigmoidoscopic and histological pictures that went back to normal at the end of the follow-up period (Table IV).

DISCUSSION

The results of this study showed that honey regimen was effective in managing chronic non-specific diarrhoea. The patients included in this series were related mostly to the gastro-intestinal disease called "the irritable bowel syndrome."[5,6]

However, nine patients were suffering from non-specific ulcerative colitis who showed a good response to honey regimen. In a previous study, we employed honey rectal enemata for treating ulcerative colitis patients. Nevertheless, our success was limited and we faced difficulties over the matter.[4] Now it is pretty evident that the oral honey is very useful in this group. The present series is small and we shall take the matter further to include large number of cases so that our conclusions will be sound.

It is observed that other symptoms, including psychological ones, had been improved and those who manifested loss had regained their losses. The patients who relapsed have responded to a fresh course of honey. They are feeling well relieved and happy because, for months and even years they used to receive repeated courses of anti-diarrhoeal, anti-amoebic, anti-cholinergic, anti-biotics and other drugs, either continuous or intermittent with none or poor response. They were subjected to toxic and side-effects of such chemotherapy. In addition, they suffered the heavy cost of medicine and economical losses because of repeated sick leaves spending them miserably at home. On the other hand, honey is delicious, cheap, nutritious, easily available, safe and which carries no side-effects.[7]

It is not clear how the honey works in diarrhoea. It is known that honey contains 40% dextrose. It also has bacteriostatic property[7]. It

also modifies the secretory functions of alimentary tract and for sure it reduces gastric HCl secretion and perhaps inhibits gastric and other intestinal hormones. Consequently, the motility of the gut may be modified towards the regulation of bowel habit. However, we feel that this study should be extended to include the patho-physiology of diarrhoea and identify the role of honey in its control.

TABLE - I:
PATIENTS: AGE & SEX

Age Group	Female	Male	Total
Under 20 years	4	-	4
Under 20-30 years	13	5	18
Under 31-40 years	8	11	19
Over 40 years	5	7	12
TOTAL	30	23	53

TABLE - II:
PRESENTATION

Symptoms and Signs	Female	Male	Total (%)
Diarrhoea	30	23	53 (100%)
Diffuse abd. pain	20] 28	9] 17	45 (85%)
Localised abd. pain	8	8	
Flatulence	19	12	31 (58.9%)
Distension	16	7	23 (43%)
Anal irritation	15	7	22 (41%)
Nausea & vomiting	13	4	17 (32%)
Weight loss	4	3	7 (13%)
Abd. Sigmoidoscopy	5	6	11 (20%)
Abd. rectal biopsy	7	8	15 (28%)

TABLE - III:
RESPONSE TO THE TREATMENT

Response	Patients			
	Female	Male	Total	Percent
Good	15	13	28	53
Moderate	10	6	16	30
Poor	5	4	9	17
TOTAL	**30**	**23**	**53**	**100**

TABLE - IV:
FOLLOW-UP (4 months)

Response	Patients			
	Female	Male	Total	Percent
Relapse	4	5	9	17
Intermittence	5	2	7	13
Abd. Sigmoidoscopy - 2 out of 7				
Abd. rectal biopsy - 2 out of 11				

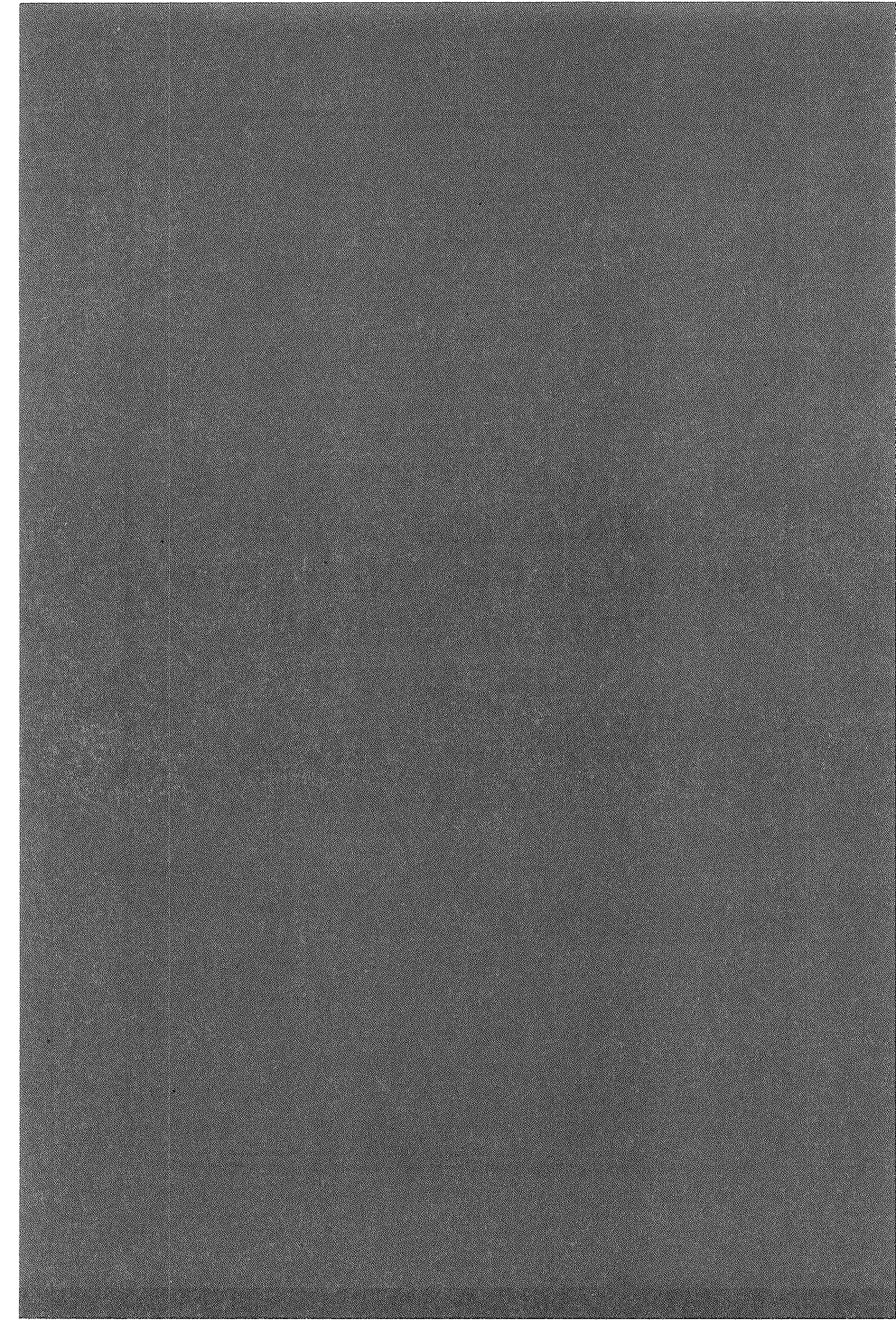
REFERENCES

1. KOTB, S. THELAL-AL-QURAN (1961) "*Dar of Arabic Traditions*", Beirut, Lebanon 3rd Ed., Sura XVI NAHL 69.
2. MOSLEM, SAHIH, NAWAWI (1971) "*Dar of Arabic Traditions*", Beirut, Lebanon, 2nd. Ed, Part 13, p. 191-200.
3. YUSUF, A., "*The Holy Quran*" (1946) Me-Gregor and Wiener Inc. USA, Nahl. 69
4. SALEM, S.N. (1981). *"Bullentin of Islamic Medicine"*, vol. 1, 358-362.
5. CHAUDHARY N. and TRUELOVE, S.C. (1962), "The irritable bowel syndrome, *Quart J. Med.*" Vol. 34, 110-121
6. SALEM S.N., RICHARDS A., and TRUELOVE S.C. (1964) "Gastric and small intestine abnormalities in ulcerative colitis", vol. 2, 275-280
7. ISMAIL, A., "*Islam and Modern Medicine*" (1959) Arab Publication Co., 2nd Ed., Cairo - Egypt.

A CLINICAL STUDY OF THE TOPICAL USE OF BEE HONEY IN THE TREATMENT OF SOME OCULAR DISEASES

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A CLINICAL STUDY OF THE TOPICAL USE OF BEE HONEY IN THE TREATMENT OF SOME OCULAR DISEASES*

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The author got the idea of using honey in the treatment of some external ocular diseases from Sourat el-Nahl in the Holy Quran:

> AND THY GOD INSPIRED THE BEES, TO BUILD CELLS IN HILLS, ON TREES AND IN HABITATIONS, THEN TO EAT THE NECTAR OF FLOWERS OF FRUITS, AND FIND WITH SKILL THE SPACIOUS PATHS OF THY GOD: THERE ISSUES FROM WITHIN THEIR BODIES, A DRINK OF VARYING COLOURS, WHEREIN IS HEALING FOR MANKIND: VERILY IN THIS IS A SIGN FOR THOSE WHO GIVE THOUGHT
>
> (S.16: V.68,69)

The author employed honey, for the first time clinically, in the treatment of a patient who presented with dense post-herpetic corneal stromal reaction. The patient named A.A. was a male, aged 30 years, who had a recurrent dendritic corneal ulcer with intense stromal reaction. The patient had four previous recurrences. In the last recurrence, the cornea was erroneously treated by the local instillation of corticosteroid drops prescribed by a local doctor to suppress the stromal antigen-antibody reaction. Later, the patient was sent to me for consultation and on examination a large amaeboid corneal ulcer in a fairly white eye was found (Fig. 1). The patient was then advised to stop immediately all local steroids and was asked to commence with specific antiviral therapy, I.D.U. drops hourly during the day, and

* Bulletin of Islamic Medicine, Vol. 2, 422-425, 1982.

Vidarabine ointment at night in addition to ancillary treatment in the form of atropine drops q.i.d., pad and bandage (Emarah, 1978). After 15 days complete re-epithelialization of the cornea occurred and no staining with fluorescein could be demonstrated (Fig. 2.) In spite of this effective conventional therapy, the patient's visual acuity did not substantially improve because of the dense stromal reaction. This situation was very critical because the topical use of corticosteroids which is known to suppress the viral antigen-antibody reaction in the corneal stroma will inevitably enhance virus replication in the corneal epithelium making the condition very much worse, while the delay in resolving the stromal reaction will result in permanent corneal damage through scar tissue formation.

This led the author to prescribe Bee honey topically twice daily to test its efficacy in such critical situations.

The repeated ocular examinations once weekly revealed definite resolution of most of the stromal reaction within six weeks (Fig. 3).

This fascinating result encouraged the author to conduct a clinical study to find out the efficacy of the topical use of Bee honey in the treatment of external ocular problems.

MATERIAL AND METHODS

Selection of Patients

Patients presenting, at the University Hospital or my private consultation office, with an external ocular trouble were examined clinically in a systematic fashion. All positive findings necessary to make the diagnosis on clinical grounds recorded. All patients with external ocular inflammations had a swab taken from the conjunctival sac and sent to laboratory for culture and sensitivity test to available antibiotics. Epithelial scrapping was also done in selected cases to assist the diagnosis.

After making the final diagnosis based on clinical observations and laboratory investigations, the appropriate conventional line of

treatment was recommended for each patient. Patients who did not respond to the appropriate conventional therapy, e.g. post-herpetic stromal keratitis, were admitted to the present clinical study of using Bee honey for their treatment. The following patients were also included in the clinical trial:

1. Patients with non-specific post-inflammatory stromal keratitis (Fig.4).
2. Patients with chronic non-specific conjunctivitis whose conjunctival culture and scraping were negative.
3. Patients with phlyctenular kerato-conjunctivitis (Fig. 5).
4. Patients with xerotic patches of the conjunctiva.
5. Patients with persistent chronic blepharitis with fall of eye lashes (Fig.6).

Method of Application

Pure oriental Bee honey was applied with a glass rod into the interior conjunctival fornix, just like any eye ointment, 2-3 times daily depending on the ocular condition. The patient was reviewed once weekly recording all the signs and symptoms of the ocular condition, in addition to drawing a sketch or taking a photograph as necessary. The condition was judged to have improved, unchanged or worse in comparison with the signs and symptoms noted at the previous attendance.

RESULTS

Most patients reported that they had a transient stingy sensation and redness of the eye soon after application of honey into the conjunctival sac. This had never been severe enough to stop the treatment. Most patients showed variable degrees of improvement but very few remained clinically unchanged. None of the patients got worse with this treatment. The following table illustrates the results.



Fig.1
Large Amaeboid Herpetic Corneal Ulcer.

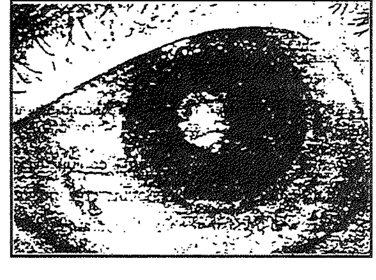


Fig.2
Post-herpetic Corneal scarring fifteen days after treatment

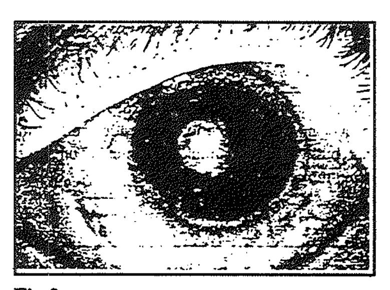


Fig.3
Post - herpetic Corneal scarring six weeks after treatment showing resolution of the Stromal reaction

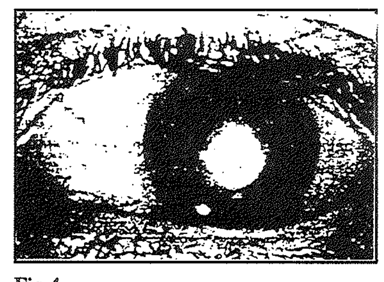


Fig.4
Non-specific Post-inflammatory Stromal Keratitis

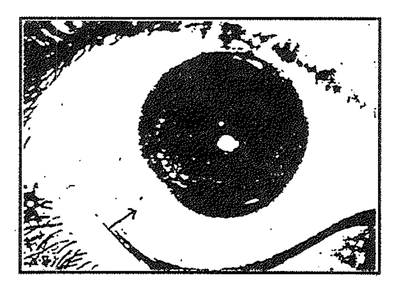


Fig.5
Phlyctenular Keratoconjunctivitis. The arrow points to the site of the Phlycten.



Fig.6
Squamous Blepharitis showing scales at the root of the lashes.

Ocular Conditions Treated	Total No. of Patients	No. of patients improved	No. of patients unchanged
Non-specific stromal keratitis	30	26 (86.7%)	4 (13.3%)
Post-herpetic stromal keratitis	18	15 (83.3%)	3 (16.4%)
Chronic non-specific conjunctivitis	14	12 (85.7%)	2 (14.3%)
Phlyctenular kerato - conjunctivitis	16	14 (87.5%)	2 (12.5%)
Xerosis of conjunctiva	9	8 (88.9%)	1 (11.1%)
Chronic Squamous Blepharitis	15	12 (80.0%)	3 (20.0%)

DISCUSSION

Honey is the sweet viscid yellow fluid, the nectar of flowers collected by Bees. The results obtained in the present study after the topical use of Bee honey in the treatment of some external ocular diseases are indeed very encouraging.

The mode of action of Bee honey in the resolution of the aforementioned external ocular conditions is very intriguing. One may speculate that the hyperaemia induced by the irritant effect of honey flushes the affected area with non-specific antibodies combating the disease process. Also, Bee honey may contain some enzymes which activate the specific and non-specific body defensive mechanisms to protect itself against the undue harmful effects of the invading micro-organisms. This mode of action will obviously have no dangerous side effects on the human body and will not induce any iatrogenic disorder. These speculations, being based on purely clinical observations, may require some laboratory biochemical and pathological confirmatory evidences. The biochemical assays may take years and years of painstaking research work before one discovers, if God wills, the actual active ingredients in Bee honey, the unique Holy medicine.

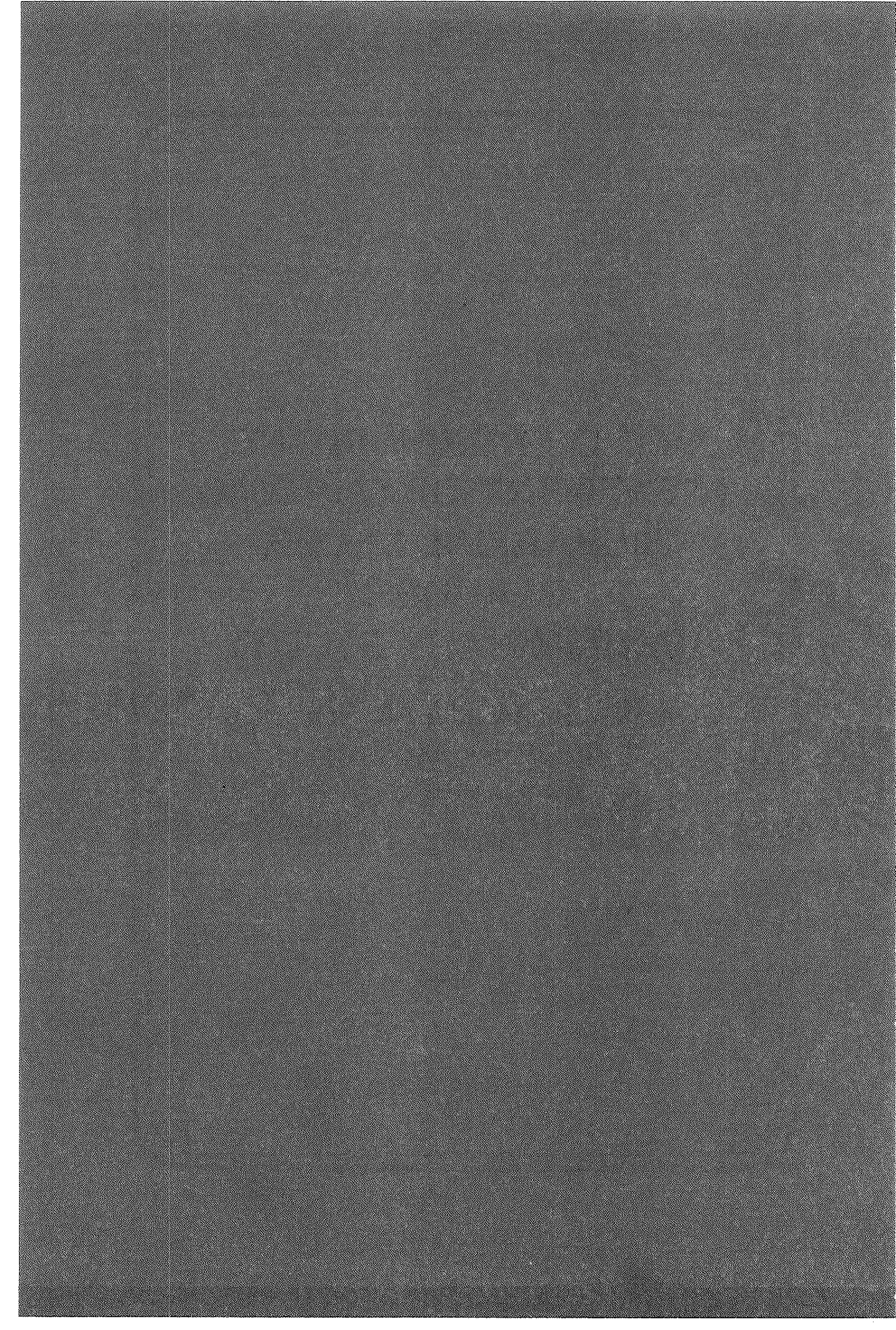
REFERENCES

1. *The Holy Quran, Surat el-Nahl*
2. SHAMS EL-DIN M. EL-JOZIEH, *The Prophet's Medicine Book.*
3. EMARAH, M.H. (1978): "*Viral Keratitis: New Aspects of Treatment*", XXIII Concilium Ophthalmologicum, Kyoto International Congress, Series No. 450, p. 1751-1753.

USE OF HONEY IN THE TREATMENT OF CHRONIC BILHARZIAL ULCER BLADDER (PRELIMINARY STUDY)

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USE OF HONEY IN THE TREATMENT OF CHRONIC BILHARZIAL ULCER BLADDER*
(Preliminary Study)

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INTRODUCTION

God said in the Holy Quran[1] in Sorat al-Nahl (Bees) paragraph 68 & 69 what means:

> GOD HAS SENT A HOLY MESSAGE TO BEES TO MAKE USE OF THE MOUNTAINS, TREES AND SPREADING FRUITS AND GO THROUGH ALL THE ROUTES THAT GOD HAS FACILITATED. OUT OF THEIR BELLIES GETS A SYRUP (HONEY) IN DIFFERENT COLOURS; IT GIVES CURE TO PEOPLE. IN THIS, THERE IS A VIRTUAL EXAMPLE TO THINKING PEOPLE.

The Holy Quran paragraph and many of the Sayings of the prophet Mohamed (ﷺ) explain the benefits of honey. As an example of the Prophet (ﷺ) sayings in this respect:

"*Take these two curatives: honey and the Quran.*"[6]

Also, His sayings in this respect:

"*That who takes honey thrice a month will not contract a severe illness.*"[6]

He (ﷺ) also said:

"*Cure is in three: drink of honey, wet cupping and cautery and I do not recommend the latter.*"

* Bulletin of Islamic Medicine, Vol. 2, 415-421, 1982.

Going along the religious program in al-Azhar Faculty of Medicine and bearing in mind the prevalence of urinary bilharziasis amongst the Egyptian farmers, we suggested this work. Ulcers of the bladder are common complications of urinary bilharziasis. We tried the use of honey in the treatment of chronic bilharzial bladder ulcers.

REVIEW OF LITERATURE

In Egypt, we get three types of honey: honey of citreons (Oranges & Lemons), honey of clover, honey of cotton.[4]

Honey is usually collected twice a year in June and in August or September. In the citreon rich fields a third collection can be got in April.

Composition of honey:

Water	17.7%
Fructose	40.5%
Sucrose	1.9%
Glucose	34.02%
Minerals, Acids & unidentified substances	4.2%

It contains also vitamins as B_1,B_6, C, K, E, etc. It includes enzymes as Diastase, Invertase, Catalase, Peroxidase, etc... Minerals in honey include Calcium, Sodium, Potassium, Magnesium, Iron, Phosphorus, Sulfur, Iodine and Radium in certain types. Antibiotics, Antiviruses and cytotostatics[3,8] have been identified in it.

Therapeutic use of honey:

Since a very long time honey has been widely used in the treatment of many diseases and wounds. Hippocrates[12] used it since 2500 years for treating wounds as also did Avicenna,[13] D. Antaky,[5] Ibn al-Bitar[2] and others. M. Pollman[14] dressed wounds with honey and observed rapid healing. This is attributed to the privileges of honey:

a) Bactericidal due to its hygroscopic action.

b) The dressing remains wet and does not stick to the growing granulation tissue.

c) It is nontoxic and nonirritant.
d) It contains glucose, fructose, vitamins and minerals essential for rapid regeneration of tissues.

Y. Krentsky[15] ascribed the rapid healing of wide wounds after application of honey to the increased production of glutathione in the tissues. Glutathione stimulates oxidation and hence activates cell growth and multiplication.

In urology, honey has been used widely since a long time by al-Samarkandi[4] and Ibn al-Nafis.[7] Avicenna[13] used it with some herbs in treating bladder ulcers. Nafis[7] applied it with barley for treating bladder swelling. Rhaziz,[16] Antaky[5] and others[17] combined it with other medicines to control urinary calculi.

Honey is used also for diseases of the gastrointestinal tract, skin, eye, heart, blood, respiration, psychoneurosis and intoxications.

MATERIAL AND METHODS

Eighty patients with chronic bilharzial bladder ulcers were selected from al-Azhar University Hospital's outpatients. They underwent these investigations:

- History and clinical examination.
- Urinalysis, culture and sensitivity both before and after the treatment.
- Cystoscopic examination of the bladder with detailed description of any changes, site, size and shape of the ulcer. This was repeated after completing the course of treatment.
- Radiographic examination of urinary tract: Plain and in certain cases I.V.U.
- A course of antibilharzial treatment (antimony compound) I.M. was given to every patient before the trial.

Then the patients were divided into three groups:

Group I: 50 patients, each was given one table-spoonful (15 ml.) of honey (80% in water) orally daily for two months. 40 ml. of

honey (50% in sterile water) were instilled into the bladder through a catheter twice per week. The patients were instructed to keep the solution in the bladder for two hours.

Group II: 10 patients who were found to have urinary bacterial infection were given antibiotics, according to the urine culture and sensitivity, a full course for 10 days and then a suppressive dose for 50 days.

Group III: (Control): 20 patients had a tablespoonful of 50% sucrose in water orally daily for two months. 40 ml. of normal saline 0.9% was instilled in the bladder and kept for two hours, twice weekly for two months.

RESULTS

The cases, selected, included 71 men from 20 to 39 years old and 9 females, 18-32 years old.

Most patients were complaining of the usual symptoms of cystitis as burning micturition, referred pains and of frequency of micturition.

Clinical examination showed suprapubic tenderness in 12 cases and on the prostate and bladder base in 28 cases.

Sign of fibrosis in the spermatic cord were detected in four patients.

Urinalysis: The constituents were within normal limits except an excess of R.B.C. in 64% of cases and excess W.B.C. in 48%.

Urine culture: At the onset of treatment 59 cases (74%) had sterile urine and 26% showed significant bacteriuria (Bacterial counts more than 10).[6] Organisms found included:

Organisms	No. of cases
E. coli	15
Staphylococci	5
Ps. aeruginosa	1

Cystoscopy: All cases showed chronic bilharzial cystitis with one or more chronic bilharzial ulcers.

Urography: was performed for 33 patients. 21 cases showed bilharzial calcification of the bladder and lower ureters. One had a small stone in the left kidney.

I.V.U.: showed dilatation in the lower ureters in 7 cases (5 unilateral and 2 bilateral).

FOLLOW-UP:

Group I: The use of honey caused improvement of the condition of the patients and ameliorated their symptoms in a large number of cases.

Table I

Complaint	Before Treatment	After Treatment	Percentage Improved
Burning micturition	50	22	56
Post-mictur. pain	44	16	63
Suprapubic pain	20	8	60
Perineal pain	10	-	100
Urethral pain	8	-	100
Frequency (extreme $\frac{20}{10}$)	16	6	62
Frequency (moderate $\frac{10}{6}$)	26	14	46

The ratio of R.B.C. and W.B.C. in the urine dropped in most cases.

Table II

No. of Cells	No. of cases before treatment.	Cases Cured	Percentage
R.B.C.: 100 H.P.F.	4	4	100
10 - 100	28	12	43
W.B.C.: 100 H.P.F.	4	4	100
10 - 100	20	8	40

N.B. Some of the severe cases changed to moderate.

This group included 16 patients with positive urine culture. After treatment 10 of these including one with pyocyaneus showed sterile culture. But two cases who had sterile culture before treatment developed staphylococci positive cultures after treatment.

Cystoscopy showed marked improvement in 43 out of 50 cases and 28 ulcers healed completely; Table III.

Table III

Cystoscopy	Before Treatment.	Healed	% of Healing
Chr. superficial U.B.	50	28	56

Group II: (Cases receiving antibiotics) included 10 cases of whom 5 had positive urine cultures. They received: chloramphenicol 3, cephalosporin 2, according to culture and sensitivity and sulfamethoxazole for the sterile cases, 5. At the end of treatment, 2 cases improved and showed a drop in the number of W.B.C. in the urine, but not to the normal level. In 3 cases cystoscopy showed improvement in the bladder mucosa but the ulcers remained the same, only one ulcer was reduced in size.

Group III: (Control) One of 20 cases showed symptomatic improvement for some time, but later these were exacerbated and the R.B.C. and W.B.C in urine did not change, except in

two improving cases. In one case in which symptoms became distressing, W.B.C. in the urine increased.

Cystoscopy: We found the same picture in 17 cases. In one case the size of the ulcer increased and in two cases it became less.

DISCUSSION

God said in the Holy Quran what means:

IN IT (HONEY) THERE IS CURE TO PEOPLE.

These Holy words did not specify the disease or diseases and laid freedom to human thinking and experimentation in this respect. Also from the words of Prophet Mohamed (ﷺ) and following the routes of the old Moslem scientists we carried out this work to treat a common disease in Egyptians.

Many Moslem authors[2,4,5,7 & 10] mentioned the value of honey in treating ulcers of the stomach and duodenum. Samarkandi[4] used it for bladder ulcers, oral or through the urethra. Nafis[7] used honey with barley water for bladder swellings. It has been used in old times and recently as antibacterial and antiviral agent and for dressings of wounds, burns and abscesses. Polman[14] ascribed its value to its hygroscopic properties and that its dressings do not stick to the wound and remains moist protecting the growing tissues.

There is a good ratio of the constituents of honey of unidentified nature. It contains biological substances, vitamins, hormones, enzymes and cell activators.

In Egypt and in some other countries due to bilharzial infection patients develop ulcer of the bladder. Chronic bilharzial bladder ulceration is a disabling disease. It results from fibrosis and ischemia of the submucosal tissues which lead to necrosis of the mucosa and ulceration.

The effective treatment for these ulcers up till now is surgical excision of the ulcer and the surrounding part of the whole thickness of the bladder wall.

In our department two groups of research workers tried two drugs for these ulcers:

1. Prostaglandins $PGF_2\,\alpha$ and PGE_2[18] and
2. Honey

The first drug gave encouraging results but the rate of cure did not reach that attained with honey which has biological and cell activator properties.

Using honey orally and intravesically for two months resulted in improvement of the patient's complaints and disappearance of some symptoms as burning micturition in 56%, urethral and perineal pain in 100% of cases. The ratio of R.B.C. in the urine (sign of ulcer activity) dropped. Also the pyuria improved and bacteria disappeared from 62% of cases in spite of the use of urethral catheterization twice weekly, for the drug instillation.

Cystoscopy showed improvement in most cases and complete healing of the ulcers in 56%. This is a rather high ratio if evaluated against the relatively short period of drug application. If a longer trial is made we may get better results. There are as well other bilharzial complications as bladder neck stenosis or ureteric strictures which may be responsible for persistence of some symptoms.

The use of antibiotics in chronic bilharzial ulcers of the bladder did reduce some of the symptoms due to the associated secondary infection but could not give cure of the ulcers. The preliminary use of antibilharzial treatment did not markedly affect the course of chronic ulcers. The improvement was marked with the use of honey.

CONCLUSIONS & RECOMMENDATIONS

Honey is one of the natural drugs which prove valuable in the treatment of many diseases.

In this work, honey was used both orally and intravesically for the treatment of chronic bilharzial bladder ulcers in a group of patients.

Two other control groups were compared. The results showed

honey to be effective in ameliorating pains and in the healing of a good percentage of cases.

We suggest giving honey more chances in managing this disease and others. It is also advisable to use it for longer periods. Critical chemical analysis to define the effective constituents of honey is welcome.

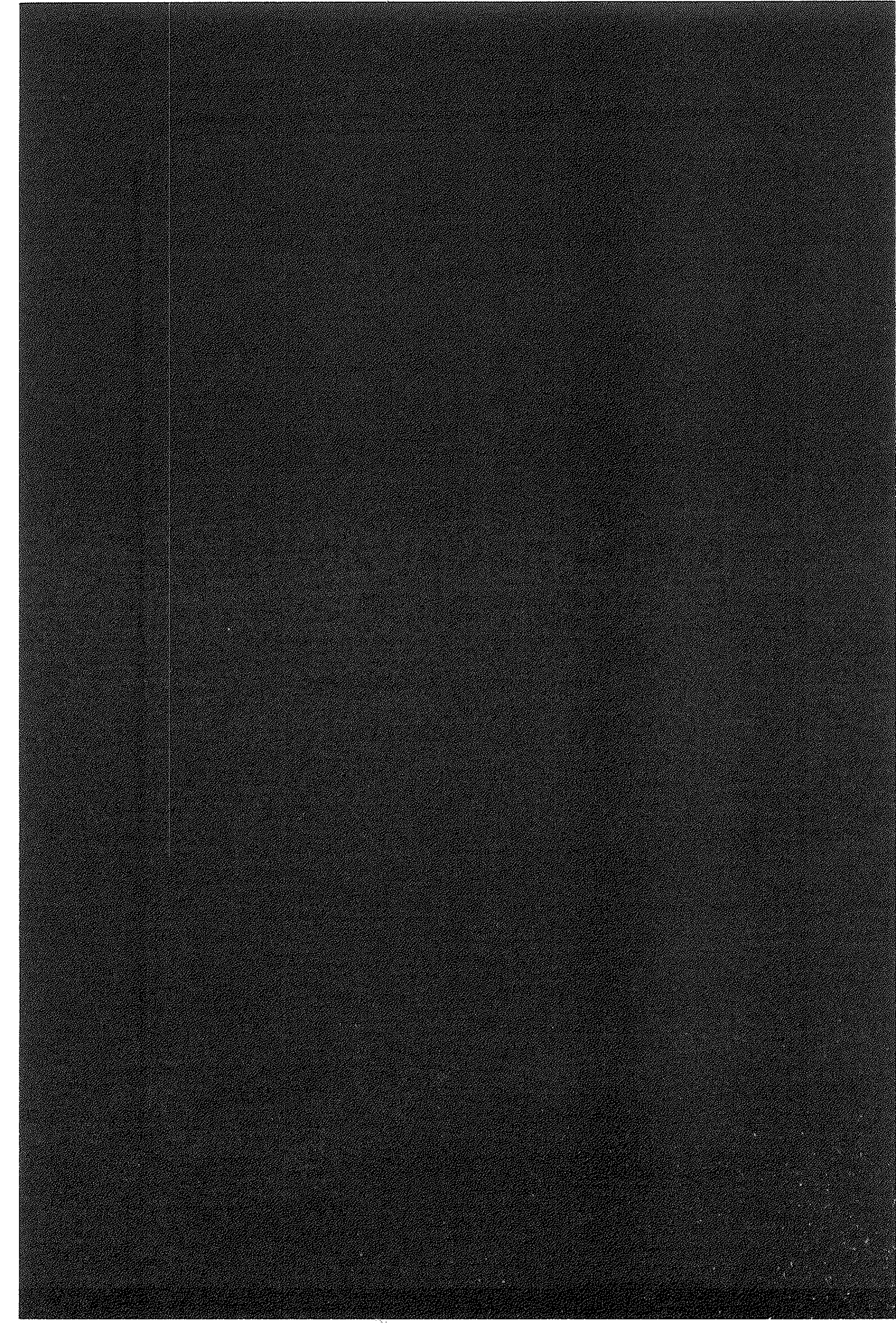
REFERENCES

1. The Holy Quran, "*Sorat al-Nahl*", paragraphs 68 & 69.
2. IBN-AL-BITAR, "*Algamei of the elements of drugs and foods*" (1291 H), vol. 2, Boulak Printing House, Cairo.
3. HALWAGY M., "*Treatment with honey*", Arabic translation of Yoyarech, N. (1976) Dar al-Maaref-Cairo.
4. AL-SAMARKANDI, N.M., "*The Causes and Signs - Hand writing by M.G. Al-Khorassamy*" (962 H), 280 - Al Gamei al-Azhar Printing House, Cairo.
5. AL-ANTAKY, D., "*Tazkaret Daoud*" (1321 H.), Ottman, P.H., Cairo.
6. IBN-MEGAH, A.M.Y., "*Sonan Ibn - Magah*", al-Elmeya P.H. (1313 H.), Cairo.
7. IBN AL-NAFIS A., "*Explanation of Mogaz al-Quran in Medicine*" (1281 H.) al-Gamei al Azhar P.H., Cairo.
8. ABDEL-SALEM, A.L., "*Honey and Cure of Diseases*" (1975), Dar al-Maaref, Cairo.
9. WAFA A. (1961), Studies in Islam 9, 3.
10. AMER, A.S.; "*Treatment of Urogenital Diseases in Rhazis and Magousy Writing*", M.S. Thesis, al-Azhar Faculty of Medicine, 1978, Cairo.
11. MOTAWEI, A.M. (1979) "*al-Azhar J.*" 46, 2.
12. HIPPOCRATES, "*Quoted by Halwagy*" (3)
13. AVICENNA, "*al-Qanun in Medicine*" vol. 1, 2, & 3 (1294 H), Boulak P.H., Cairo.
14. POLMAN M., "*Quoted by Halwagy*" (3)
15. KRENITSKY, Y., "*Quoted by Halwagy*" (3)
16. RAHAZIZ M.Z., "*Takaseem al-Elal*" (Hand writing) (1146 H).
17. YOYERECH N., "*Treatment with honey*", Arabic translation by Halwagy (3)
18. ABDEL-RAHIM F., Al-Kholi, S.; Al-Guindi M. "*Use of Prostaglandins in chronic Bilharzial bladder ulcers*" (1980), M.D. Thesis, Al-Azhar Faculty of Medicine.

ANTIBACTERIAL ACTION OF HONEY

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ANTIBACTERIAL ACTION OF HONEY*

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The therapeutic action of honey was mentioned in various studies in traditional medicine. It was proved that local application of honey promoted healing of wounds. The antibacterial substances in honey are still unknown exactly and are called "inhibin".

The present study is an *in-vitro* comparison of antibacterial action of honey in different dilutions, to the effect of a number of commonly used antibiotics on 9 types of pathogenic organisms in urine samples of 149 patients of urinary tract infection. It was found that the antibacterial action of honey in 50-30% dilution, is superior to all antibiotics including gentamicin.

INTRODUCTION

The Holy Quran mentioned honey and attributed some therapeutic values to it. The therapeutic value of honey was underlined in various literature. It occupied a prominent place in traditional medicine. The use of honey has recently been reviewed. Local application of honey was found to promote healing of wounds in some patients. This unusual treatment was first brought to the medical attention by Prof. Scott-Russedl of Sheffield. This method was applied to several infected abdominal wounds in Sheffield and St. Louis. The results were sufficiently remarkable to consider further use of method in patients undergoing radical operation for vulval carcinomas. The wounds generally break down owing to impaired blood supply. Healing rarely occurs by primary intention and skin

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grafting may be necessary to assist wound closure [1]. Undiluted honey was used in 12 patients who developed wound breakdown following a radical operation for carcinoma of vulva. The results were encouraging. The healing process was particularly enhanced. Culture from the wound was obtained at intervals. The time at which the wound became bacteria-free was 3-6 days in all cases. Also the time of complete wound healing was noted[2].

The improvement of the healing process was partly attributed to the antibacterial action. It is well established that natural unheated honey shows an antibacterial activity (Warnecke et al 1958)[3] and does not support the growth of pathogenic bacteria commonly encountered in septic wounds. Honey is non-irritant and so can promote the rapid growth of healthy granulation tissues.

The antibacterial effect was first demonstrated[4] by Dold et al (1937), who included honey in a study of materials with natural antibacterial action and described an assay procedure. The activity of diluted honey was shown against 17 bacteria. The activity was heat labile and somewhat light-sensitive. They related it to similar antibacterial activities reported in another material of natural origin which they termed inhibin.

The presence in honey of various amounts of inhibin as described by Dold et al (1937) has been reported by several investigators. Placky (1944)[5] discussed the known constituents of honey that might be responsible for antibacterial action and concluded this was not due to sugar, acids, nitrogen compounds, enzymes, pH, vitamins or other known constituents. He noted that inhibin passes through a dialysis membrane and withstands vacuum concentration with no activity remaining in the solution. Schuler and Vogel (1956)[6] extracted undiluted honey in various solvents and reported that the inhibitory substance was ether-soluble.

Schade et al (1958)[7] showed that inhibin was more heat sensitive than honey amylase and that its level in a limited number of honeys by

a modified Dold Assay did not correlate with amylase activity.

Warnecke et al (1958) assayed 600 honey samples of 131 types for inhibin by the Dold procedure. They concluded that inhibin activity and invertase activity ran parallel.

Stomfay-Stitz et al (1960)[8] stated that inhibin was active against both gram positive and negative bacteria and was of unknown constitution.

Gluconic acid was recently found to be the principal acid in honey (Stenson et al, 1960)[9]. The acid-producing enzyme in honey was a glucose oxidase producing gluconic acid (gluconolactone) and hydrogen peroxide from glucose[10]. The H_2O_2 was produced in honey by the action of a glucose oxidase on glucose. The enzymatic oxidation of glucose takes place very slowly in undiluted honey and at much higher rates as honey was diluted[10].

The role of honey as a healer in certain types of wounds particularly septic burn notorious for their chronicity is worth investigation. An *in-vitro* investigation of the potency of honey was thought a necessary step before advising the use of honey for application in the treatment of burns.

MATERIALS AND METHODS

The present study is based on the *in-vitro* comparison of the sensitivity of certain pathogenic micro-organisms to the effect of a number of commonly used antibiotics and various dilutions of honey in distilled water. 5 dilutions starting from 50% to 10% were used. The bacteria were isolated from the urine of patients complaining of various U.T. troubles. The types of isolated bacteria in descending frequency were E. Coli, Klebsiella, B. Proteus, and Pseudomonas. A lower incidence of Strepto cocci and Staphyol cocci was reported. The antibiotics tested were Cephaloridine (Cr), Penbritin (Amp), Gentamicin (Gn), Nitrofurantoin (Nit), Nalidixic acid (N) and Co-Sulfamethazol (SX1).

RESULTS AND DISCUSSION

Out of the 320 samples of urine cultured, 191 were found sterile and 149 were found to have bacteria, 100,000/cm. 9 types of pathogenic bacteria were identified in the urine samples. The most common type was E coli, found in 80 samples. The other types were markedly less common. Comparison between the bacterial activity of the various dilutions of honey and the commonly used antibiotics is shown in the Table. Among the antibiotics, Gn proved to be the most potent. Nit, N and SX1 were the least effective.

The potency of honey 50% - 30% was found to be superior to all types of antibiotics including Gn. The effect of honey was not affected by dilutions up to 30%. The sensitivity to both 20% and 10% honey was less for Klebsiella, where sensitivity dropped particularly with the 10% dilution. Dilution of honey below 30% seems to lower the efficiency. This is in conformity with the reports of Cavanagh et al (1970). The overall picture confirms the finding of several other works about the efficiency of honey as an antibacterial agent recommended for infective complications of wounds. Also the application of honey to infected burns seems quite promising.

Sensitivity of various types of pathogenic bacteria to the same antibiotics and various concentrations of honey

Organiss	No. of Cases	Antibiotics						Honey				
		CR	Amp	Gn	Nit	N	SX1	50%	40%	30%	20%	10%
E Coli	80	3	4	80	42	44	44	80	80	80	80	80
B Proteus	20	3	2	20	-	-	3	20	20	20	10	10
Pseudomonas	10	1	-	10	1	1	-	10	10	10	10	10
Klebsiella	25	-	-	25	-	-	6	25	25	25	21	10
B.H. Strept.	4	4	4	-	-	-	-	4	4	4	4	4
Staph aureaus	3	3	3	-	-	-	2	3	3	3	3	3
Staph albus	1	1	-	-	-	-	-	1	1	1	1	1
H Strept.	5	5	4	-	-	-	4	4	4	4	4	4
Un H Strept.	1	1	1	-	-	-	-	1	1	1	1	1

REFERENCES

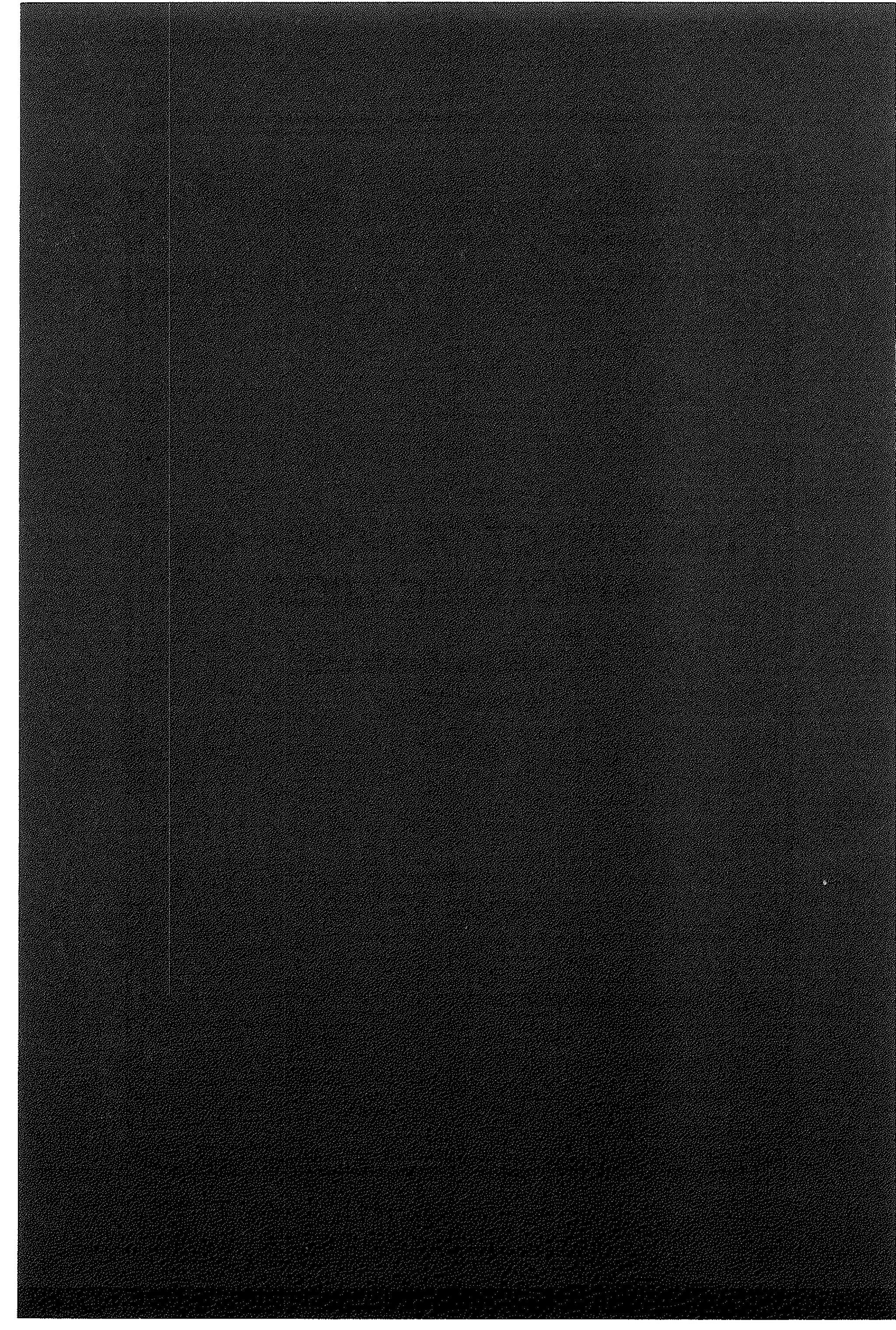
1. CAVANAGH, D. and DESAI, S. *Australian and New Zealand Journal of Obs. & Gyn.*, 8, 171 (1968)
2. CAVANAGH, D., BEAZLEY, J. and OSTAPOWICS, *F.,J. Obst. and Gyn. of Brit. Commonwealth*, 77, 1037 (1970)
3. WARNECKE, B., DUISBERG, H., and LEBENSON, Z. *Untersuch Forsch*, 107, 340 (1958)
4. DOLD, H., DU, D.H. and DZIAO. *Hyg, Infekttion Skrankh*, 120, 155 (1937)
5. PLACKY, E. ZENTE, *Bakterial Parasitenk, abt.* 11, 109, 401 (1944)
6. SCHULLER, R. and VOGEL R. *Arzneimittel-Forsch*, 6, 194 (1958)
7. SCHADE, J.E., MARSH, G.L. and ECKERT, J.E. *Food Res.* 23, 446 (1948)
8. STOMFAY-STITZ, J., KOMINORS, S.D. and LEBENSON, Z. *Forsch*, 113, 304 (1960)
9. STENSON, E.E., SUBERS, M.H., PETTY, J. and WHITE, J.W. *J. Arch. Biochem. Biopys.* 89, 6 (1960)
10. JONATHAN, W., WHITE, J.R. and MARY, H., Subers and Abnder, 1, Schepartz, *Biochemica et Biophysica Acta*, 73, 57 (1963)



THE EFFECT OF HONEY ON PATHOLOGIC LIVER

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THE EFFECT OF HONEY ON PATHOLOGIC LIVER*

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INTRODUCTION

God says in the Holy Quran in Al-Nahl (Bees) paragraph 68 and 69 what means:

> GOD HAS SENT A HOLY MESSAGE TO BEES TO MAKE USE OF THE MOUNTAINS, TREES AND SPREADING FRUITS AND GO THROUGH ALL THE ROUTES THAT GOD HAS FACILITATED. OUT OF THEIR BELLIES GETS A SYRUP (HONEY) IN DIFFERENT COLOURS; IT GIVES CURE TO PEOPLE. IN THIS, THERE IS A VIRTUAL EXAMPLE TO THINKING PEOPLE.

Our Prophet Mohammed (ﷺ) also mentioned:

"*Take these two curatives: honey and the Quran*".

Honey was known to the ancient Egyptians and they called it: the holy drink. It was described in Ebers Papyrus which was written in the first dynasty 2270 years B.C. (Kamal, 1964). Ancient Egyptians recognised the medical value of honey and used it in the treatment of many diseases.

Arabs discovered the value of honey since the beginning of Islam. It was also described by Elhafez Alzahaby in his book "Al-Tibb Al-Nabavi" in the seventh Hegry century. He recommended its use for the treatment of liver, kidney and gastro-intestinal diseases. Ibn Albitar similarly described it in "Mofradat El-Adwiya" in the thirteenth century.

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In the sixteenth century, Dawood Elantaky in his book advocated its use in the treatment of jaundice and hepatotoxic diseases.

Honey is used as a vehicle for medicines, such as honey cough syrups. Some physicians have recommended honey with milk for feeding infants especially those suffering from rickets, scurvy, malnutrition, anemia, inflammation of the intestine and the effects of prematurity. For athletes and others engaging in strenuous physical labours honey has been widely used: since the dextrose portion of honey is quickly absorbed into the blood stream while the levulose must be changed first to glycogen and then into dextrose, honey provides an immediate as well as an extended source of energy. This particular characteristic of honey is the basis for its recommendation by some doctors for diabetics.

Fresh honey is composed of the following constituents:

Water	17.7%
Levulose (fruit sugar)	40.50
Dextrose (grape sugar)	34.02
Invert sugars	74.98
Sucrose (cane sugar)	1.90
Dextrins	1.51
Ash (minerals)	0.18
Acid	0.08
Undetermined	4.9

This gave us impetus to investigate effect of honey on the pathologic liver in an experimental model.

MATERIAL AND METHODS

Forty male albino rats weighing 180 to 200 grams were equally divided into four groups, each group consisted of ten animals. Estimation of serum glutamic pyruvate transaminase (SGPT) and serum glutamic oxalacetate transaminase (SGOT) was carried out for

all animals in the four groups at the start of the experiment.

Group 1: Induction of hepatotoxicity was carried out in each animal by oral administration of 5 ml/Kg ethyl alcohol followed 18 hours later by intraperitoneal (i.p.) administration of carbon tetrachloride in the dose of 0.5 ml/Kg body weight. Afterwards the liver function tests were estimated and the animals were observed for 15 days without receiving any treatment.

Group 2: Hepatotoxicity was induced in the animals as previously mentioned in Group 1. Then liver function tests were estimated subsequently, each animal received 2 ml distilled water orally by gastric cannula for 15 days.

Group 3: Hepatotoxicity was induced in all animals as aforementioned. Then liver function tests were carried out for all the animals. Afterwards, each animal received 5 ml/Kg body weight fresh clover honey orally daily for 15 days by gastric cannula.

Group 4: Hepatotoxicity was induced in all animals as mentioned before and liver function tests were estimated. Then each animal received, orally, 50 mg/Kg of thiazolidine-4-carboxylic acid (Heparegen) in distilled water for 15 days.

At the end of the experiment the survival rate in each group was counted. Estimations of SGPT and SGOT were carried out in living animals. The livers of the animals in each group were dissected out and sent to the pathology department for examination.

RESULTS

The results are shown in Table 1.

TABLE 1
THE EFFECT OF HONEY ON HEPATOTOXICITY IN COMPARISON WITH HEPAREGEN

Group Parameter	Group 1 1st Control	Group 2 2nd Control	Group 3 Treatment with Honey	Group 4 Treatment with heparegen
Induction of hepatotoxicity	-	-	Oral 5ml/kg C_2H_5+ 0.5 ml/kg CCl_4, IP	Oral 5ml/kg C_2H_5 + I.P. 0.5ml/kg CCl_4
SGPT at Start of experim.	19	18	18	20
SGOT at Start of experim.	50	54	52	54
SGPT after induced hepatotoxicity	45	38	35	40
SGOT after induced hepatotoxicity	105	104	110	115
SGPT after treatment by Honey 5ml/kg orally for 15 days	-	-	15	-
SGOT after treatment by Honey	-	-	60	-
SGPT after treatment by Heparegen 50 mg/kg orally for 15 days	-	-	-	30
SGOT after treatment by Heparegen	-	-	-	82
Survival Rate	0%	0%	90%	40%

DISCUSSION

A successful experimental model for hepatotoxicity was established in this study by the combined administration of ethyl alcohol and carbon tetrachloride. Carbon tetrachloride is one of the most important hepatotoxic agents (Recknagel, 1967).

It can produce both acute hepatic necrosis and fatty liver degeneration (Klassen and Plaa, 1966; Judah, 1969; Fowler, 1970; Grice et al., 1971). Moreover, it can affect various cell organelles such

as the endoplasmic reticulum, the mitochondria and the lysozomes (Bassi, 1960; Dianzani; 1963, Ashworth et al, 1963). Ethyl alcohol as well is a strong hepatotoxic agent and can induce acute hepatic necrosis (Rouiller, 1964). The basic mechanism underlying fatty liver degeneration induced by carbon tetrachloride is the blockade of the secretion of hepatic triglyceride into the plasma (Lombardi, 1966). On the other hand, the mechanism of acute hepatic necrosis is the dilatation of the endoplasmic reticulum and the inhibition of protein synthesis (Magee, 1966).

Ethyl alcohol or ethanol is also considered as a hepatotoxic agent that is able to produce fatty degeneration in the liver. Ethanol ingestion, both acute and chronic, affects lipid metabolism resulting in the accumulation of triglycerides in the liver (Lieber, 1967). There is also evidence that ethanol has a direct inhibitory effect on hepatic gluconeogenesis (Krebs et al, 1969). The net result is hypoglycemia subsequent to the depletion of glycogen stores (Vartia et al, 1960).

The available model is characterised by the following criteria:

1. The administered agents produce distinctive lesions.
2. The severity of the lesions is related to the dose.
3. Quantitative differences in potency can be found but the same type of lesions can be produced in all test animals.
4. The lesions are reproducible in various experimental animals.
5. The lesions appear after a predictable brief latent period.
6. Liver function tests are seriously influenced in this model.

After induction of hepatotoxicity, the levels of serum glutamic pyruvate transaminase (SGPT) and serum glutamic oxalacetate transaminase (SGOT) markedly increased.

The significant change of these parameters is an indication of hepatic parenchymal degeneration and a sign of hepatotoxicity (Hawk, 1965; Cornish, 1971).

The animals in the control groups began to loose weight 24 hours after the induction of hepatotoxicity and died within 15 days.

In the third group which was treated by honey for 15 days, the survival rate was 90%, and the liver function tests were restored to normal values (Table 1). The curative and beneficial effect of honey can be attributed to the following.

1. Correction of hypoglycemia.
2. Replenishment of glycogen stores in the liver.
3. Stimulation of hepatocytes to recover from fatty degeneration.

On the other hand, thiazolidin-4-carboxylic acid (Heparegen) is a new synthetic compound for the treatment of hepatotoxic conditions. It supplies the liver with exogenous sulph-hydryl group which is required for normal liver function.

This compound produced a beneficial effect on the hepatotoxic model established in this study but the liver function tests were not restored to the normal values, and only 40% of the animals survived after treatment with Heparegen. The pathological picture of the liver in Groups 1 and 2 proved the hepatotoxic effect of both ethyl alcohol and carbon tetrachloride.

In the third group which was treated by honey, the pathological picture markedly improved and the hepatic cells became normal. The fourth group which was treated by Heparegen showed moderate improvement in the pathological picture.

Comparison between natural honey and synethetic Heparegen indicates that the first is far more superior in combating hepatotoxicity than the second, as regards the available model.

CONCLUSION

The model of hepatotoxicity applied in this study is a successful model for testing drugs and materials that are devoted for treating pathological liver conditions. Fresh honey proved to have a significant curative effect against severe hepatoxicity.

REFERENCES

1. ASHWORTH, C.T., LUIBEL, F.J., SANDERS, E. and ARNOLD, N. "*Arch. Pathol*"., 75, 212, 1963.
2. BASSI, M. "*Exp. cell Res.*", 20, 313, 1960.
3. CORNISH, H.H., "*CRC crit. Rev. Toxicol.*", 1, 1, 1971.
4. DAWOOD ELANTAKY, "*Tazkaret Oli Alalbab*", 4th ed., 1, 1.2.7, 1930.
5. DIANZANI, M.U., "*Ciba symposium on lysozomes*". Little, Brown and Co., Boston, pp. 335, 1963.
6. ELHAFEZ ALZAHABY, "*Al-Tibb Al-Nabavi*" (seventh Hegry century), 52 ed.
7. FOWLER, J.S., "*J. comp. pathol.*" 80, 465, 1970.
8. GRICE, H.C., BARTH, M.L. CORNISH. H.H., FOSTER, G.V. and GRAY, R.H. "*Food cosmetic Toxicol.*", 9, 847, 1971.
9. HAWK, P.B., "*Hawks Physiological Chemistry*", 508 Mc Grew Hill, Inc. Bonay, New York, 1965.
10. IBN ALBITAR, ABO-MAHAMMD "*Mofradat Eladwiya*", 1, 1240.
11. JUDAH J.D., "*Br. Med. Bull.*", 25, 274, 1969.
12. KAMAL, H. "*Egyptian Ancient Medicine*", Egypt. Soc. For Publication, Cairo, 337, 1964.
13. KLASSEN, C.D. and PLAA, G.L.,, "*Toxicol. Appl. Pharmacol.*", 9, 139, 1966.
14. KREBS, H.A., FREELAND, R.A., HEMS, R. and STUBBS M., *Biochem. J.*, 112, 117, 1969.
15. LIEBER, C.S. "*Annu. Rev. Med.*", 18, 35, 1967.
16. LOMBARDI, B., "*Lab. Invest.*" 15, 1, 1966.
17. MOGEE, P.N., "*Lab. Invest.*", 15, 111, 1966.
18. RECKNAGEL, R.O., "*Pharm. Rev.*", 19, 145, 1967.
19. ROUILLER, C. "*The liver*", Vol. 2, Acad. Press, Inc., New York, 1969, pp. 335.
20. VARTIA, O.K. and KRUSIUS, F.E., "*Q.J. Stud. alcohol.*", 21, 579, 1960.

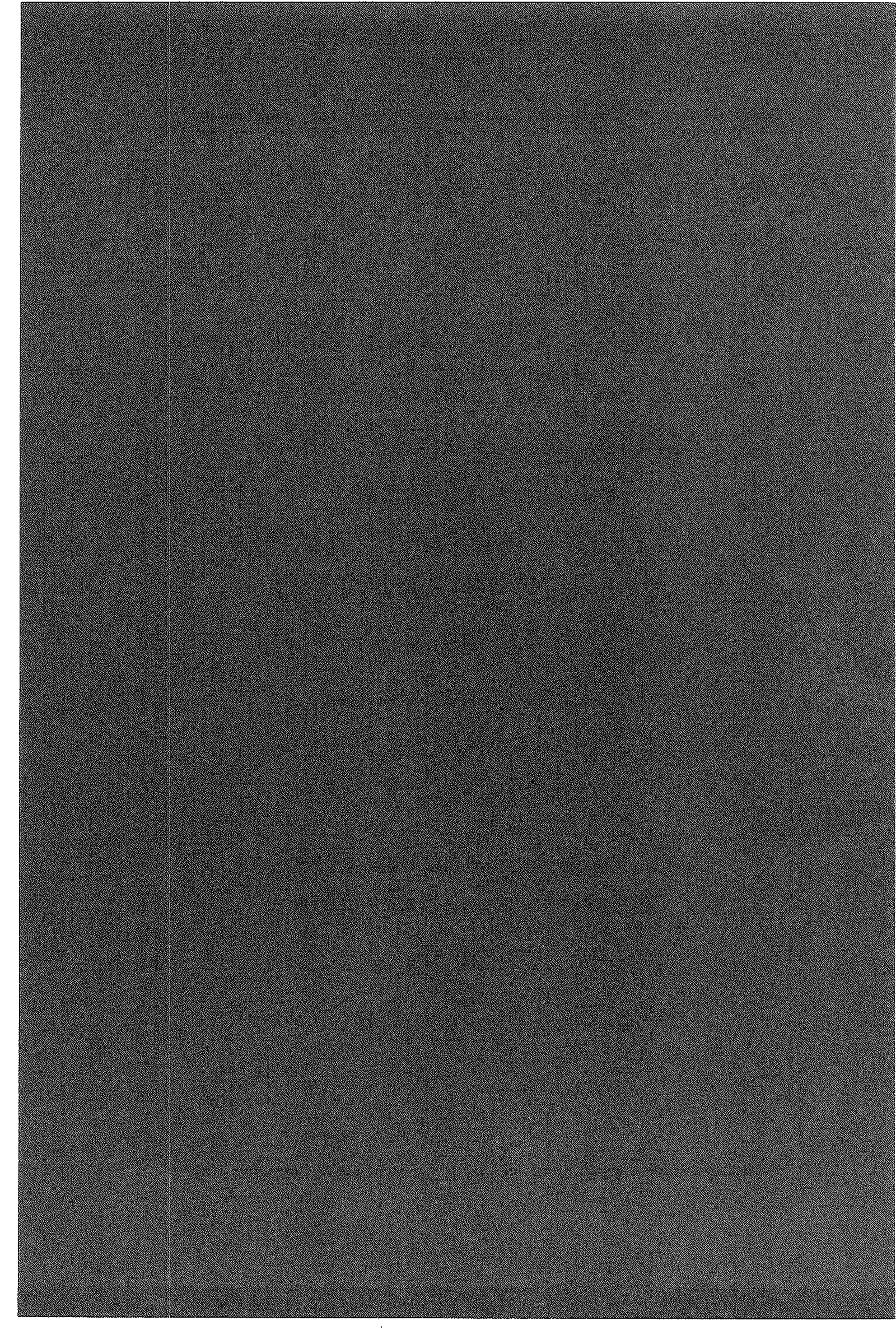


EFFECTS OF PURE HONEY FROM *APIS FLOREA* (SMALL BEE), *APIS DORSATA* (LARGE BEE) *AND AN AULTERATED HONEY ON BLOOD GLUCOSE LEVELS OF NORMAL AND ALLOXAN-DIABETIC RABBITS*

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PAKISTAN



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INTRODUCTION

To lessen the risk of cardiovascular disease, American, Canadian and British diabetes associations have recently recommended increasing the carbohydrate intake by the diabetic patients. They have agreed on the point that foods which raise the blood glucose level for a given carbohydrate content are most suitable (Jenkins et al., 1983). These considerations have raised the question as to what particular carbohydrate rich foods should be recommended to the patients suffering from diabetes.

Honey, the largest portion of which consists of sugars has been considered not only to be non-injurious but also a cure for diabetic patients (Grout, 1954). It is frequently used as a sweetening agent in place of sucrose in eastern folk antidiabetic preparations. Moreover, it has been regarded empirically even as a hypoglycaemic agent in the indigenous medicine (Nadkarni, 1954; Said, 1969). The present investigations were, therefore, carried out to determine the chemical analysis of three different honeys and to study their effects on the blood glucose levels in normal and diabetic albino rabbits.

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MATERIALS AND METHODS

Chemicals Used

Alloxan-monohydrate, alpha-D-glucose (anhydrous), methanol and potassium sodium tartrate were obtained from B.D.H. Laboratories (Chemical Division), Poole, England. Glacial acetic acid, benzoic acid,O-toluidine, thiourea, DNS (3, 5 dinitro salicylic acid) and trichloracetic acid were obtained from E.Merck, Darmstadt, West Germany. All other chemicals and reagents used were of analytical grade prepared by E. Merck or B.D.H. Laboratories. Tolbutamide was obtained from Hoechst (Pakistan) Ltd., Karachi.

Animals Used

Adult, healthy rabbits of a local strain weighing between 1000-1500 g were used in these experiments. The animals were kept in an air-conditioned animal room of the Physiology and Pharmacology Department of the University. The animals were offered a balanced rabbit feed prepared by the Nutrition Department of the University and allowed tap water *ad libitum*. The effects of honeys were studied on blood glucose levels on the normally fed (non-fasted) rabbits. In addition, separate experiments were performed to study the effects on blood glucose levels of the non-fasted alloxan-treated diabetic rabbits.

Preparation of Diabetic Rabbits

A group of rabbits, weighing 1000-1500 g were made diabetic by injecting them intravenously with 150 mg/kg body weight of alloxan monohyrate (Akhtar et al., 1981). Eight days after injection of the alloxan monohydrate, blood glucose levels of all the surviving rabbits were determined by the O-toluidine method as described by Fings et al (1970). Rabbits with blood glucose levels of 350-550 mg/100 ml were

considered as diabetic and were employed for further study as already reported by Sharma et al (1978).

Honeys Used and Determination of their Chemical Composition

Honeys from small bee *(Apis florea)* and large bee *(Apis dorsata)* were obtained from a village of Punjab. The samples were collected in pure form directly from the honey-combs and were preserved in glass jars after proper processing. Similarly, a low priced honey sample was purchased from the market of Faisalabad. All the samples were analysed chemically for their mineral contents (ash), moisture, total reducing sugars and non-reducing sugar contents. The said contents of all the three honey samples were determined by the procedures described in AOAC (1980).

Grouping of Rabbits

The rabbits were randomly divided into different groups or sub-groups of 6 animals each. Animals of group I to IV were normal and healthy (non-diabetic), while the animals of the group V to VIII were made diabetic by administering alloxan-monohydrate as described earlier in a sub-heading. Group I served as a untreated control as they received orally 20 ml of water (Marquis et al, 1977). The animals of group II to IV were treated orally with 5 ml, 10 ml and 15 ml/kg body weight of honey diluted upto 20 ml/kg with the distilled water.

To test the effect of honeys on hyperglycaemic animals the alloxan-diabetic rabbits were made similar grouping. Animals of group V were kept as diabetic control and were administered 20 ml of water only. The group VI to VIII were treated orally with 5ml, 10 ml, and 15 ml/kg body weight of honey diluted upto 20 ml with the distilled water. Similar grouping was followed for testing all the 3 types of honey in diabetic animals.

Preparation and Administration of Honeys and Tolbutamide

The amount of honey required for each animal was calculated on body weight basis and the required amount of honey was weighed by using an electronic balance. This was well mixed with water and the final volume was always made upto 20 ml. The honey solution obtained was then administered orally to each animal by using stainless steel feeding needle connected with 30 ml (B.D.) record syringe. Similarly the amount of tolbutamide required by each rabbit was calculated and the amount was drawn from the tolbutamide injection (Rastinon) and diluted to 20 ml. This solution was then administered orally by the method described above.

Collection of Blood

Just after drug administration, the animal was held in a wooden rabbit holder and immediately 0.1 ml of blood was collected from the saphenous vein. Similarly, samples for blood glucose were collected at 4, 10 and 24 h after drug administration. After pricking the vein with a needle, the blood was collected with 0.1 ml blood sugar pipette. After collection of blood, the pricked site of the vein was pressed with a cotton swab soaked with 70% ethyl alcohol to protect the rabbit against infection.

Determination of Blood Glucose Levels

Blood glucose was determined by the method of Fings et al (1970) using the O-toluidine reagent. This method gives results very close to the glucose oxidase method and is one of the most widely used manual methods.

Statistical Analysis

Mean blood glucose levels were expressed as mg/100 ml $\pm$ SEM in all the experiments and Students' "t" test was used to check their significance.

RESULTS

Chemical Analysis of honeys

Table I shows the composition of all the three types of honey used. It shows that their ash contents were 0.611 g%, 0.505 g% and 0.303 g% for *Apis florea, Apis dorsata* and low-priced commercial honey, respectively. Since the proposed Codex (1969) standard's requirement of ash contents is 0.6 - 1.0%, the commercial honey tested has been found to possess lower ash contents as compared to the natural honey. The reason for the sub-normal ash contents of the low-priced commercial honey might be the mixing of some artificial honey to some natural one. By doing this though the volume of honey might have increased but the total content of a naturally occurring substance such as ash must have decreased. Moisture contents of the honeys used did not exceed the limits and were not liable to fermentation. The principal constituent of honeys was found to be the reducing sugars which were within the recommended limits. The addition of super saturated sucrose solution to a natural honey would increase its volume but will not significantly affect its contents of reducing sugars. The non-reducing sugars contents were 5.16 g%, 5.50 g% and 9.60 g% for *Apis florea, Apis dorsata* and low-priced commercial honey, respectively. It is well established that the non-reducing sugar in the honey is maximally sucrose. Its value in low-priced commercial honey was found to be quite high which clearly indicated that sucrose was added to some natural honey. Nevertheless the non-reducing sugars of natural honey from *Apis florea* and *Apis dorsata* used in this study were approximately according to the standard.

TABLE I: CHEMICAL COMPOSITIONS OF HONEYS OF *APIS FLOREA*, *APIS DORSATA* AND A LOW-PRICED COMMERCIAL HONEY

Contents	Types of Honey		
	Honey of *Apis florea* (Small-Bee Honey)	Honey of *Apis dorsata* (Large-Bee Honey)	Low-Priced Commercial Honey
	(g%)	(g%)	(g%)
Ash	0.611	0.505	0.303
Moisture	20.16	19.05	19.10
Total Sugars	70.05	70.30	76.72
Reducing Sugars	64.89	64.80	67.12
Non-Reducing Sugars	5.16	5.50	9.60

Each value is the mean of at least 3 estimations.

Effect of Graded Doses of Honeys on Blood Glucose Levels in Normal Rabbits

The mean blood glucose concentrations ± SEM of honey-treated rabbits after oral administration of different doses of all the three honeys at various time intervals are shown in Figures 1-3. Blood glucose levels of rabbits treated with 20 ml water at zero hour after administration was found to be statistically the same ($P > 0.05$) at all intervals. The blood glucose level of animals treated with 5 ml/kg of small bee honey at zero hour interval after drug administration was 83 ± 3.9 mg/100 ml. The honey slightly increased blood glucose levels at 1 and 2 hours. This increase was, however, found to be statistically non-significant ($P > 0.05$) from the zero hour level as well as from their preceding value. Glucose level at 1, 4, 8 and 24-hour intervals did not differ statistically from the zero hour level. Similarly, administration of 5 ml/kg of large-bee honey did not significantly affect the blood glucose levels at all intervals checked. However, the commercial honey at this dosage raised ($P < 0.05$) the blood glucose at 1 and 2 hours when the post-treatment values were 105 ± 4.03 and 107 ± 3.6 mg/100 ml of blood (Figure 1).

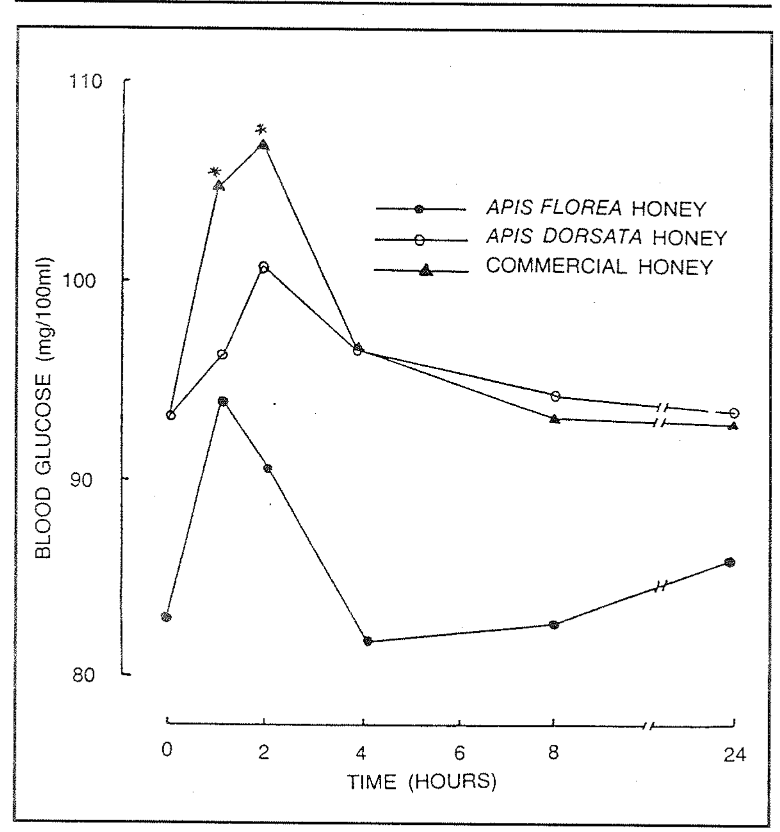


FIG 1:

BLOOD GLUCOSE LEVELS (mg/100ml) OF NORMAL RABBITS AFTER ORAL ADMINISTRATION OF 5ml/kg OF NATURAL HONEY OF *APIS FLOREA*, *APIS DORSATA* AND LOW-PRICED COMMERCIAL HONEY.

* **Significant difference from zero level ($p < 0.05$).**

All the other values are non-significantly different at ($p > 0.5$) from the zero hour.

Number of animals in each group = 6.

Figure 2 shows that the mean blood glucose level of rabbits treated with 10 ml/kg of small-bee honey was found to be 96 ± 1.8 mg/100 ml just after its administration. There was an increase in blood glucose level at 1 hour when the glucose level was 104 ± 2.7 mg/100 ml. It was found to be significantly higher ($P < 0.05$) than at zero hour level. However, increase at 2, 4, 8 and 24 hours was found to be non-significantly higher than the level at zero hour interval. Similarly, Figure 2 shows that the mean blood glucose level of rabbits treated with 10 ml/kg of large-bee honey was found to be 98 ± 3.1 mg/100 ml just after its administration. There was an increase in blood glucose level at 1 hour interval when the glucose level was 112 ± 5.1 mg/ml. It was found significantly higher ($P < 0.05$) than at zero hour level. However, increase at 2, 4, 8 and 24 hours was found to be non-significantly higher than the level at zero hour interval. The mean blood glucose level of rabbits treated with10 ml/ kg body weight of commercial honey was found to be 93 ± 4.6 mg/ 100 ml just after its administration. There was an increase in blood glucose level at 1 and 2 hour when the glucose levels were 109 ± 3.1 and 106 ± 2.5 mg/100 ml. It was found to be significantly higher ($P < 0.05$) than at zero hour level. However, increase at 4, 8 and 24 hours was found to be non-significantly higher than the level at zero hour interval (Figure 2).

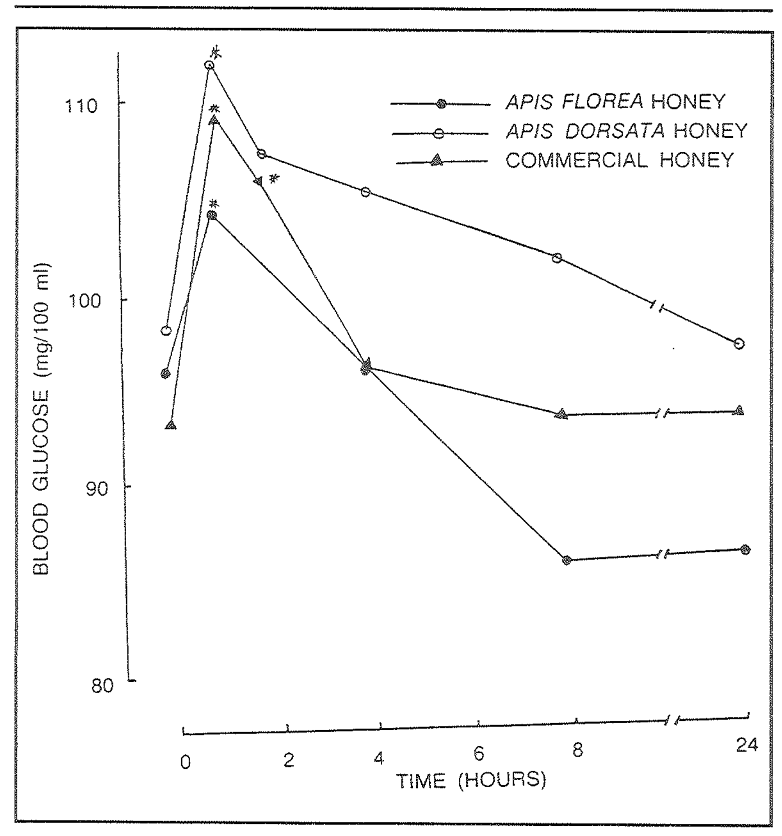


FIG. 2:

BLOOD GLUCOSE LEVELS (mg/100ml) OF NORMAL RABBITS AFTER ORAL ADMINISTRATION OF 10 ml/kg OF NATURAL HONEYS OF *APIS FLOREA*, *APIS DORSATA* AND LOW-PRICED COMMERCIAL HONEY.

* **Significant difference from zero level ($P < 0.05$).**

All other values are non-significantly different at ($P > 0.05$) from the zero hour value.

Number of animals in each group = 6.

As shown in Figure 3, the blood glucose levels of animals treated with 15 ml/kg of small-bee honey at 1 hour intervals were found to be 104 ± 2.56 which was significantly higher than at zero hour level where the level was 95 ± 2.5 mg/100 ml. The values at 2, 4, 8 and 24 hours intervals were found to be non-significantly higher than the level at zero hour. The blood glucose levels of animals treated with 15 ml/kg of large-bee honey at 1 and 2 hour intervals were found to be 100 ± 2.9 and 105 ± 4.03 mg/100 ml which were significantly ($P < 0.05$) higher than at zero hour when the level was 95 ± 3.9 mg/100 ml. The values at 4, 8 and 24 hour intervals were found to be non-significantly higher than at zero hour. Blood glucose level of animals treated with 15 ml/kg body weight of commercial honey at 1 and 2 hour intervals were found to be 123 ± 6.8 and 122 ± 4.3 mg/100ml which were significantly higher than at zero hour where the level was 95 ± 3.9 mg/ 100 ml. The values at 4, 8, and 24 hour intervals were found to be non-significantly higher than at zero hour (Figure 3).

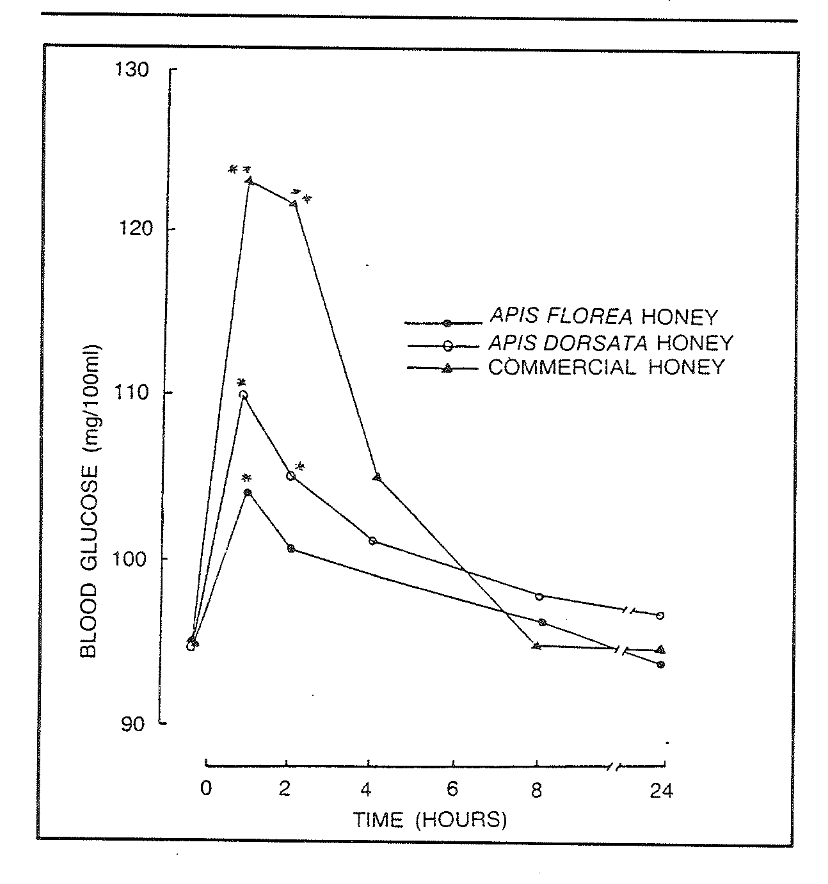


FIG. 3:

BLOOD GLUCOSE LEVELS (mg/100 ml) OF NORMAL RABBITS AFTER ORAL ADMINISTRATION OF 15 ml/kg OF NATURAL HONEYS OF *APIS FLOREA*, *APIS DORSATA* AND LOW-PRICED COMMERCIAL HONEY.

- * **Significant difference from zero level ($P < 0.05$).**
- ** **Highly significant difference from zero level ($P < 0.001$).**

All the other values are non-significantly different ($P > 0.05$) from the zero hour level.

Number of animals in each group = 6.

Effect of Alloxan Administration to Rabbits

The administration of alloxan to the experimental rabbits was carried out very slowly and proper care was taken to avoid sudden death. In spite of these a few animals receiving alloxan injection suddenly died. The blood glucose concentrations of surviving rabbits were determined after eight days of injection. The rabbits with blood glucose levels above 200 mg per cent were selected and divided into 12 groups of six animals each. The results of these experiments are in agreement with others who have also reported that alloxan treatment produced a severe persistent hyperglycaemia in the rabbits and rats (Marquis, et al, 1977; Akhtar et al, 1981; 1985).

Effect of honeys on Blood Glucose in Diabetic Rabbits

Mean blood glucose concentrations ± SEM of honeys treated alloxan-diabetic rabbits after oral administration of its different doses at various time intervals are shown in Figures 4-6. Mean blood glucose concentration of rabbits treated with 20 ml of water at zero hour intervals was found to be 342 ± 29 mg/100ml. The administration of 20 ml water alone did not alter the blood glucose levels of diabetic rabbits and their blood glucose values were found to be statistically ($P > 0.05$) the same at 1, 2, 4, 8 and 24 hours intervals. Blood glucose levels of animals treated with 5 ml of small-bee honey at zero hour interval after administration were found to be 343 ± 28.3 mg/100 ml. The honey produced a slight increase in blood glucose at 1, 2, 4, 8 and 24 hours intervals, this increase was, however, statistically non-significant ($P > 0.05$). The level at 24 hour was 350 ± 27 mg/100 ml and was found to be statistically non-significant from the zero hour level as well as from the preceding values. The blood glucose levels of animals treated with low-priced commercial honey at zero hour interval after administration was found to be 339 ± 27 mg/100 ml. The honey produced a significant ($P < 0.05$) increase in blood glucose at 1 hour when the blood glucose level was 472 ± 47 mg/100 ml. The increase was, however, highly significant ($P < 0.01$) at 2 hours when the level was 493 ± 35.8 mg/100 ml. The blood glucose level at 24 hours was 245 ± 28.1 mg/100 ml which was statistically non-significant ($P > 0.05$) from the zero hour level as well as from the preceding values (Figure 4).

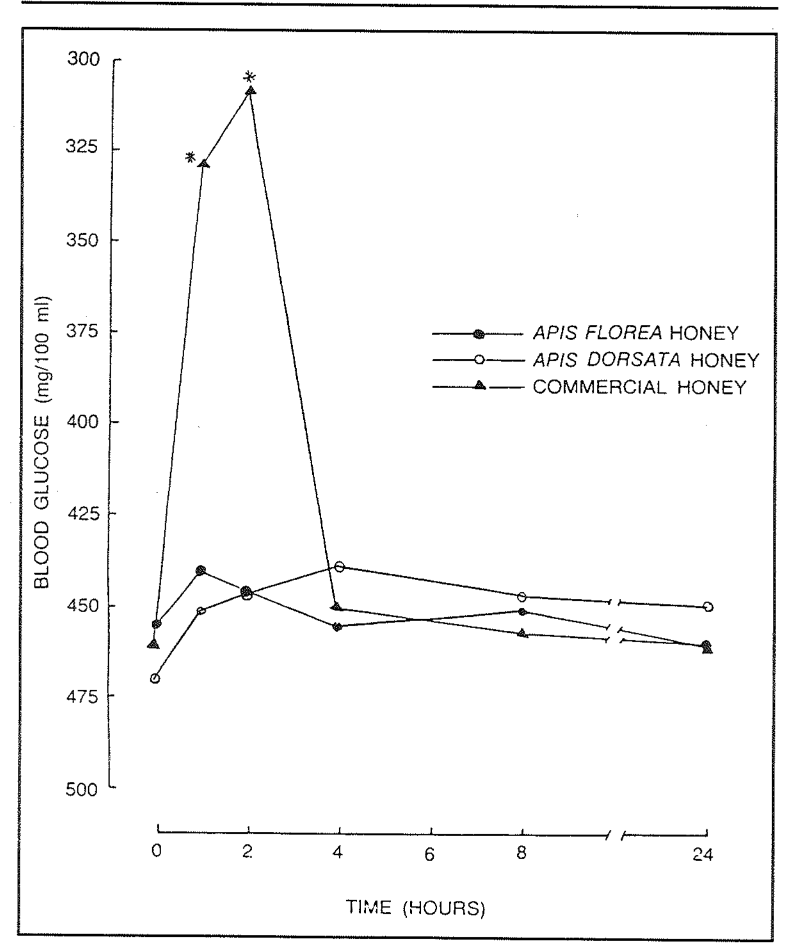


FIG. 4:

BLOOD GLUCOSE LEVELS (mg/100 ml) OF ALLOXAN DIABETIC RABBITS AFTER ORAL ADMINISTRATION OF 5 ml/kg OF NATURAL HONEYS OF *APIS FLOREA*, *APIS DORSATA* AND LOW-PRICED COMMERCIAL HONEY.

* **Significant difference from zero level ($P < 0.05$).**

All the other values are non-significantly different ($P > 0.05$) from the zero hour.

Number of animals in each group = 6.

The blood glucose levels of rabbits treated with 10 ml of small-bee honey was found to be 337 ± 27.5 mg/100 ml at zero hour. The glucose levels after 1 hour was 472 ± 47.0 mg/ 100 ml and that was significantly higher ($P < 0.05$) from the blood glucose level at zero hour level. The blood glucose levels of animals treated with 10 ml/kg of large-bee honey was found to be 329 ± 25.3 mg/ 100 ml. The glucose levels after 1 hour was 488 ± 44 mg/100 ml and that was significantly higher from the blood glucose level at zero hour. At 2,4,8 and 24 hours the level was found to be statistically non-significant from zero hour level. The blood glucose levels of animals treated with 10 ml of low-priced honey was found to be 342 ± 27.5 mg/ 100 ml. The glucose levels after 1 hour was 465 ± 43 mg/100 ml and that was significantly higher from the blood glucose level at zero hour while at 2 hour interval there is highly significant increase occurring while the level was 488 ± 35.8 mg/ 100 ml. At 4, 8 and 24 hour levels were found to be statistically non-significant from zero hour level (Figure 5).

The blood glucose levels of animals treated with 15 ml/ kg of small bee honey was found to be 342 ± 29.0 mg/100 ml at zero level. The glucose levels after 1 hour was found to be 469 ± 35.0 mg/ 100 ml which was significantly higher ($P < 0.05$) than the blood glucose level at zero hour. At 2, 4, 8 and 24 hour levels were, however, found to be statistically non-significant ($P > 0.05$) from zero hour level. Similarly, the blood glucose level of animals treated with 15 ml/kg of large-bee honey was found to be 333 ± 26 mg/ 100 ml at zero hour. A highly significant increase in glucose level was recorded at 1 hour intervals when the glucose level was 492 ± 44 mg/100 ml. At 24 hour interval glucose level was found to be 335 ± 25.5 mg/100 ml which was statistically similar to the zero hour level. The blood glucose level of animals treated with 15 ml/kg of commercial honey was found to be 339 ± 27.8 mg/100 ml at zero hour. A highly significant increase in glucose values were 569 ± 51.6 and 544 ± 43 mg/ 100 ml respectively. At 24 hour interval glucose level was found to be 344 ± 28.1 mg/ 100 ml which was statistically similar to the zero hour level (Figure 6).

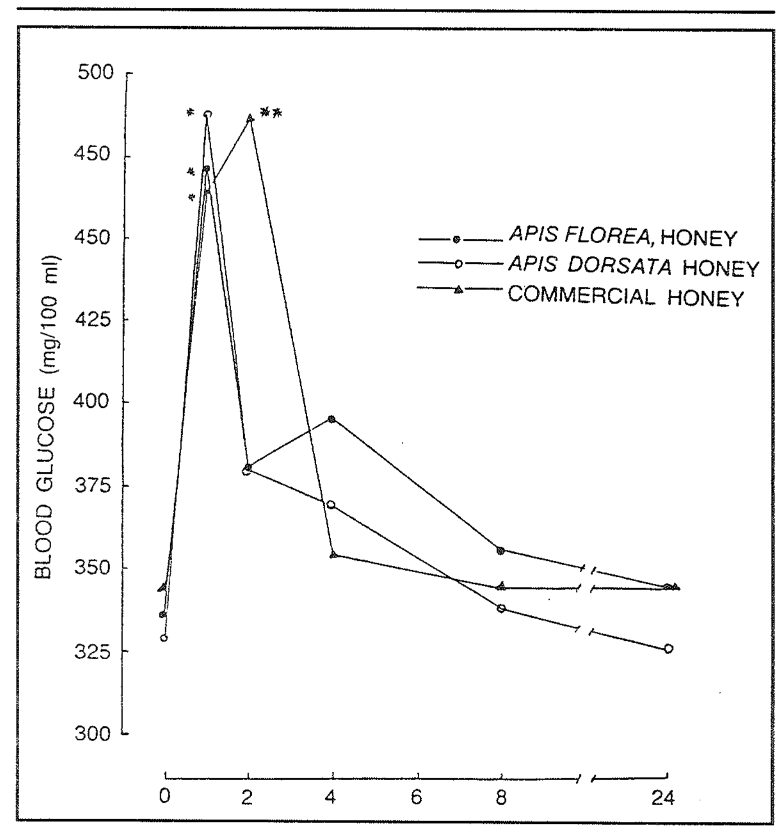


FIG. 5:

BLOOD GLUCOSE LEVELS (mg/100 ml) OF ALLOXAN DIABETIC RABBITS AFTER ORAL ADMINISTRATION OF 10 ml/kg OF NATURAL HONEYS OF *APIS FLOREA, APIS DORSATA* AND LOW-PRICED COMMERCIAL HONEY.

*** Significant difference from zero level ($P < 0.05$).**

**** Highly significant difference from zero level ($P < 0.001$).**

All the other values are non-significantly different at ($P > 0.05$) from the zero hour. Number of animals in each group = 6.

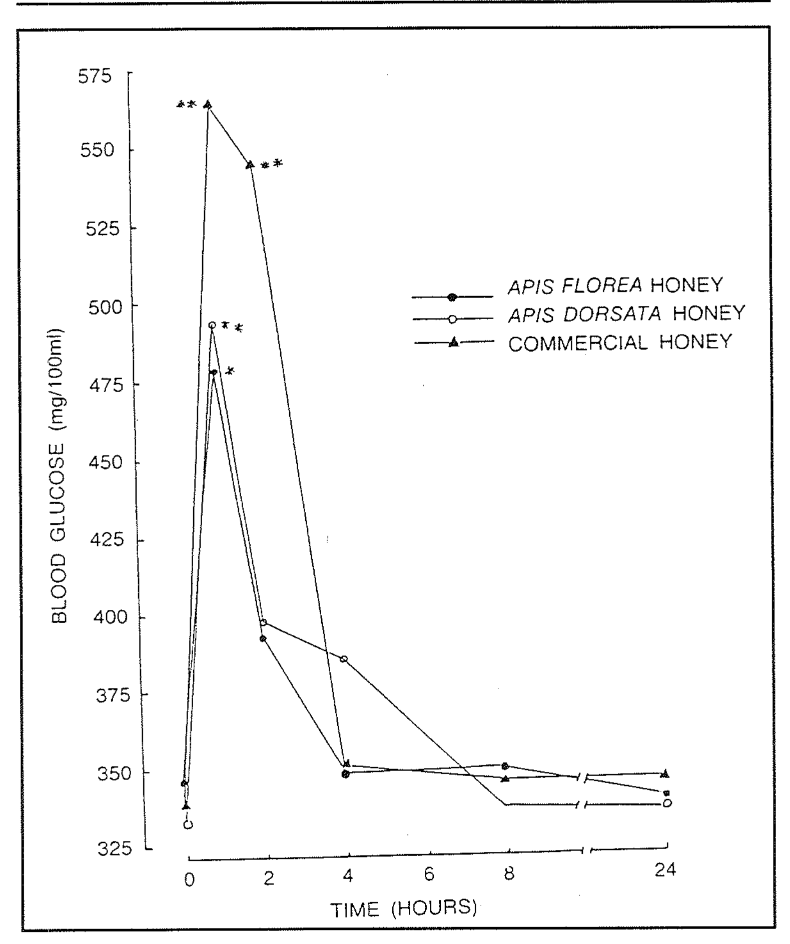


FIG. 6:

BLOOD GLUCOSE LEVELS (mg/100 ml) OF ALLOXAN DIABETIC RABBITS AFTER ORAL ADMINISTRATION OF 15 ml/kg OF NATURAL HONEYS OF *APIS FLOREA*, *APIS DORSATA* AND LOW-PRICED COMMERCIAL HONEY.

- * **Significant difference from zero level ($P < 0.05$).**
- ** **Highly significant difference from zero level ($P < 0.01$).**

All the other values are non-significantly different at ($P > 0.05$) from the zero hour.

Number of animals in each group = 6.

DISCUSSION

Honey is a substance which is produced naturally by several types of bees from the nectar of various flowers. Although it is sweet in taste and is known to contain certain sugars but has been claimed in the eastern medicine to exert antidiabetic properties (Said, 1969). Many practitioners of indigenous medicine (Hakims) are still using it in various formulations to treat human diabetic patients and is also commonly used to sweeten the diabetic foods and drinks. Bee keepers also claim that numerous diabetic patients have recovered from diabetes by using honey as their source of carbohydrates (Grout, 1954). It is also reported that there is indication that honey from special plant sources are more desirable for this purpose. Several international diabetes associations have agreed on the point that foods which raise blood glucose level least for a given carbohydrate contents are most suitable (Jenkins, et al., 1983). As already mentioned, largest portion of honey consists of sugars but has been still considered to be non-injurious to the diabetic patients. As far as ascertained, no systemic study on the scientific grounds has been carried out to study the antidiabetic/ hypoglycaemic activity of this natural substance of high energy value derived from the plants by the bees. Therefore in the present study chemical analysis of three types of honeys was carried out at first and then studied their effects on blood glucose levels after oral administration to normal (non-diabetic) and alloxan-diabetic rabbits.

The chemical analysis clearly showed that the low-priced commercial honey had the mixing of some artificial honey to some natural one. The concentrations of non-reducing sugars observed in the present studies were 5.16 g%, 5.50 g% and 9.60 g% for *Apis florea* (small-bee honey), *Apis dorsata* (large - bee honey) and low-priced commercial honey, respectively. It is well established that the non-reducing sugar in the honey is maximally sucrose. Siddiqi and Furgala (1968), White and Hoban (1959) and several other workers have suggested that the highest limit of sucrose in the honey is 5 per cent.

Therefore, its value in low-priced commercial honey was found to be quite higher which clearly indicated that sucrose was added to some natural honey. Nevertheless, the non-reducing sugars in natural honeys from *Apis florea* and *Apis dorsata* used in this study were approximately according to the standard.

Blood glucose level of normal rabbits treated with 5 ml/kg body weight of the small-bee honey was found to be slightly increased at 1 and 2 hour intervals after its administration but all the values were non-significant ($P > 0.05$) from zero hour level. However, the administration of 10 ml and 15 ml/kg body weight of this type of honey significantly raised the blood glucose levels of treated rabbits only at one hour interval after which there was gradual decrease but the values at 2, 4, 8 and 24 hours were all non-significantly higher than the zero hour level (Figures 1, 2 and 3). This suggested that administration of natural small-bee honey in 10 ml and 15 ml/kg doses has raised the blood glucose levels rather than decreasing them. This is in contrast to the common folkloric belief. Blood glucose level of normal rabbits treated with 5 ml and 10 ml/kg body weight of the honey from large-bee followed similar pattern as described above except that its 15 ml/kg dose caused significant rise of blood glucose levels at 2 hour interval as well (Figure 3). In case of low-priced commercial honey, the blood glucose level of rabbits treated with 5 ml, 10 ml and 15 ml/kg body weight doses were found to be significantly raised both at 1 and 2 hour intervals. The pattern of fall, however, was similar to other two honeys already described. However, its 15 ml/kg dose further increased the blood glucose level at 1 and 2 hour intervals as these values were significantly ($P < 0.01$) higher than the zero hour levels.

Figures 1-3 clearly show that the low-priced commercial honey has caused more acute hyperglycaemia. However, as evident from Figures 1, 2 and 3, fall in blood glucose levels at various doses was also acute. These data also suggest that the commercial honey has been

adulterated with sucrose syrup. In contrast, confirming Augusti (1976), tolbutamide (250 mg and 500 mg/kg) was observed to produce significant hypoglycaemic effect in the rabbits at 4 hours after which the blood glucose level started rising gradually and returned to normal limits at 24 hours interval (Data not shown).

The effect of all the three types of honeys was also studied in the alloxan diabetic rabbits. Alloxan exerts highly selective cytotoxic action on the beta cells of the islets of Langerhens. The alloxan treated diabetic rabbits showed the classical signs of human diabetes, i.e. hyperglycaemia, glycosuria, polydipsia and polyurea, loss in the body weight, acidosis (Rerup, 1970). It has been reported that single intrvenous injection of 150 mg/kg of alloxan in rabbits is effective in killing the beta cells (Butt, 1962; Laurence and Bacharch, 1964). Thus this dose of alloxan was selected for these experiments. Blood glucose level of the alloxan-induced diabetic rabbits treated with 5 ml/kg body weight of the small-bee honey was found to be slightly increased at 1 and 2 hour intervals after its administration but all the values were non-significant ($P > 0.05$) from the zero hour levels. However, the administration of 10 ml/kg of this honey significantly raised the blood glucose levels of the treated rabbits. Similar results were obtained with large-bee honey.The low-priced commercial honey produced acute hyperglycaemia in diabetic rabbits too as it did in normal rabbits.

In the light of the data discussed so far it may be concluded that, in contrast to the common belief, pure natural honeys have not been found to exert hypoglycaemic effect in the rabbits. This is perhaps due to its high reducing and non-reducing sugar contents. Instead in 10 ml and 15 ml/kg doses all three honeys tested have produced a significant rise in blood glucose levels in both normal and diabetic rabbits. It has already been hypothesized that bees fed on the nectar of some specific flowers produce hypoglycaemia. Therefore, it is possible that honeys used in this study were not of that nature. However, natural honeys from small and large honey-bees at low dosage of 5 ml/kg only could

not produce significant hyperglycaemic effect in normal as well as diabetic rabbits. The honey adulterated with a saturated solution of sucrose produced a significant rise is blood glucose levels even at 5 ml/kg dose level in normal and diabetic rabbits. These data do suggest that pure honeys from small or large bees in low doses may be recommended as a source of carbohydrate or even employed as a sweetening agent for the diabetic patients. In large doses, however, honey in principle seems to be contraindicated as all other sugars or carbohydrate rich drinks or foods.

Finally, it must be clarified that these findings are in no way contradiction to what Allah Taala has said in the Holy Quran Sharif which means:

IN IT (HONEY) THERE IS CURE TO PEOPLES.

These words of Allah do not specify the disease or diseases but lay freedom to human thinking and experimentation in this respect. We are ourselves to find out for which disease and under what circumstances it carries a cure to the people.

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REFERENCES

1. JENKINS, D.J.A., WOLEVER, T.M.S., JENKINS, A.L., THORNE, M.J., LEE, R., KALMUSKY, J., REICHERT, R. and WONG, G.S. (1983). "*Diabetologia*" 24, 25.
2. GROUT, A.R. (1954). "*The Hive and the honey Bee*", Revised Ed., Donnelley and Sons, Chicago.
3. NADKARNI, K.M. (1954). "*Indian Materia Medica*, P. 516, Popular Book Depot, Bombay.
4. SAID, M. (ed) (1969). "*Hamdard's Pharmacopea of Eastern Medicine*", Hamdard National Foundation, P. 42, Times Press, Karachi.
5. AKHTAR,M.S. ATHER, M.A., and YAQUB, M. (1981). "*Planta Med*". 42, 205.
6. FINGS, C.S., TATLIFF, C.R., and DUNN, R.T. (1970). "*Clinical Chemistry*" (Toro, C. Ackermann, P.G., eds.), P. 115, Bostan, Little Browning and Company.
7. SHARMA, M.L., CHANDOKHE, N., GHATAK, B.J.R., JAMWAL, K.S., GUPTA, O.P., SINGH, G.B., and ALI, M.M. (1978). "*Ind. J. Exptl. Biol*". 16, 228.
8. A.O.A.C. (1980). "*Official methods of Analysis*", Association of Official Analytical Chemists, Washington, D.C.
9. MARQUIS, V.O., ADANLAWO, T,A., and OLANII, A.A. (1977). "*Planta Med*". 31, 367.
10. CODEX ALIMENTARIUS COMMISSION (1969). "*Recommended European Regional Standard for honey*" (joint FAO/WHO Food Standards Programme) CAC/RS 12-1969, Rome.
11. AKHTAR, M.S., and ALI, M.S. (1968). "*Planta Med.*" 51, 81.
12. SIDDIQUI, I.R., and FURGALA, B. (1968) "*J. Apic. Res*". 7, 51.
13. WHITE, J.W. Jr., and HOBAN, N. (1959). "*Arch. Biochem. Biophys*". 80, 386.
14. AUGUSTI, K.T., and BENAIM, M.E. (1975). "*Clinica Chimica Acta*", 60, 121.
15. RERUP, C.C. (1970). "*Pharmacol Rev*". 22, 489.
16. BUTT, T.A. (1962). "*Hypoglycaemic Response to Glucogan in Normal and Alloxan Diabetic Rabbits*", M.Phil. Thesis, Univ. of Karachi, Karachi.
17. LAURENCE. D.R., and BACHARCH, A.L.(1964). "*Evaluation of Drug Activities, Pharmacometrics*", Vol. 1, P. 33-37, Academic Press, New York.



EFFECT OF HONEY FROM APIS DORSATA/ APIS FLOREA ON WOUND HEALING IN MICE

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This research was conducted to study the effect of pure honey produced from the nectar of flowers and that of an adulterated honey obtained from feeding the bees on sugar containing liquids.

The wounds were experimentally made on the mid-back skin of 60 mice which were divided into 6 groups of 10 animals each. In three separate groups, pure honey, adulterated honey and the normal saline was applied externally on the wounds for a period of 9 days while the remaining groups separately received the three individual substances, orally.

In the mice treated with pure honey, the wound healing was much faster without leaving any scars, while in those treated with adulterated honey the healing was comparatively slow and temporary and its effect was similar to that of normal saline.

Notably, the orally administered honey was more effective than that applied externally indicating thereby the beneficial effect of honey on general health.

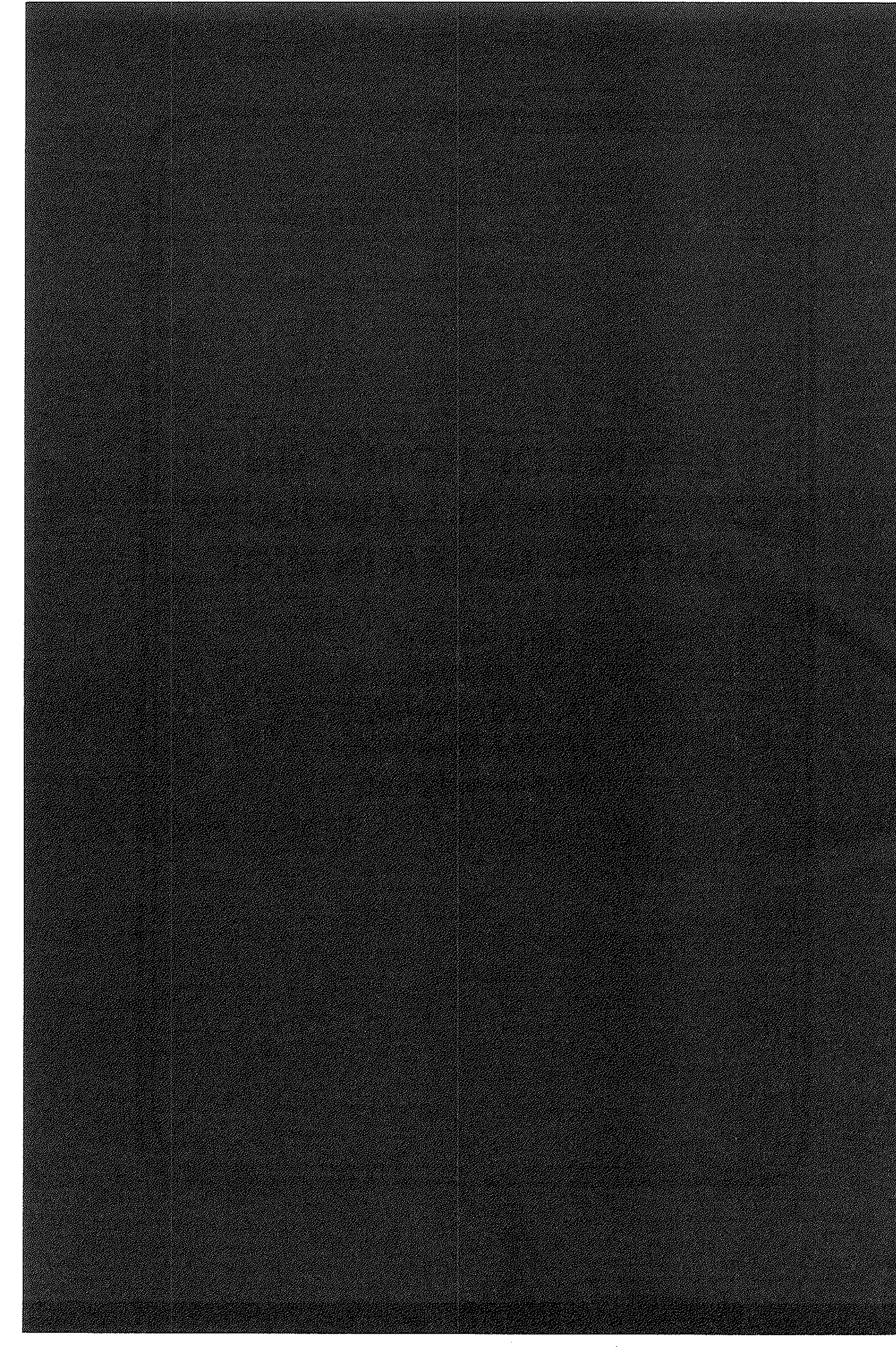
* Taken from the Arabic version published in the Bulletin of Islamic Medicine, Vol. 5, 482, 1988.



EFFECT OF HONEY ON EXPERIMENTALLY INDUCED GASTRIC ULCER IN MICE

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The gastric ulcer was induced experimentally in 60 mice by oral administration of acetyl salicylic acid (Aspirin tablets) at a dose of 50 mg/kg body weight. The animals were then restrained in supine position for 24 hours and, thereafter, divided into 6 groups of 10 mice each. Of these, three groups received real honey, false honey and normal saline, respectively, at a dose of 0.5 ml, daily, for 3 days while the remaing three groups received these medications alongwith salicylic acid.

The results showed that both the true and false honeys had a curative effect on the gastric ulcers but the real honey, obtained from the nectar of flowers, was much more effective than the false honey (which was obtained from feeding the bees on sugar salution).

* Taken from the Arabic version published in the Bulletin of Islamic Medicine, Vol. 5, 483, 1988.



PROTECTIVE EFFECT OF HONEY AGAINST DIGOXIN - INDUCED TOXICITY IN MICE

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PROTECTIVE EFFECT OF HONEY AGAINST DIGOXIN - INDUCED TOXICITY IN MICE*

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The results of the present study revealed that the LD50 (dose which kills 50% of the control mice used in the present study) of digoxin was 4.0 mg/kg body weight. Oral administration of honey at a dose of 0.5 gm, daily, for one week, prior to digoxin administration, increased the ability of the animals to endure the toxic effects of digoxin, in that, the real honey (produced from nectar of flowers) and the false honey (obtained from feeding the bees on sugar solution) increased the LD50 of digoxin to 4.7 and 4.5 mg/kg respectively. The main components of two kinds of honeys are glucose and fructose - the former functions as a rapid source of energy while the latter as an extended source of energy. However, the real honey was much more effective than the false honey. The real honey contains trace elements/minerals taken from the nectar of flowers and serve as an excellent source of electrolytes to activate the heart. Thus, the patients who are prescribed digoxin are advised to take some honey to counter the toxic effects of digoxin, at least till the effect of honey in such conditions is therapeutically explored.

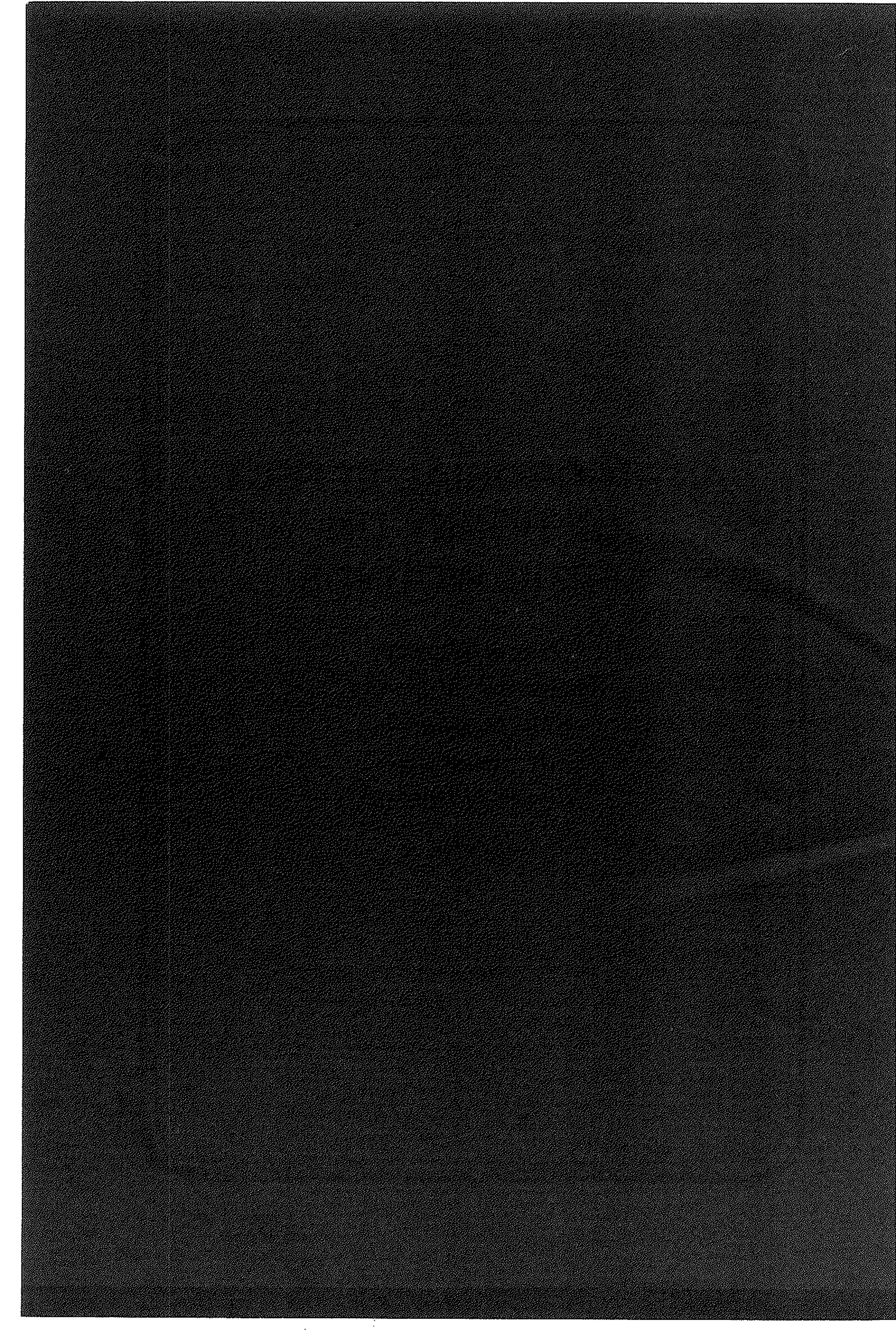
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* Taken from the Arabic version published in the Bulletin of Islamic Medicine, Vol. 5, 484, 1988.

ANTIMICROBIAL EFFECT OF HONEY ON SEPTIC WOUNDS

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ANTIMICROBIAL EFFECT OF HONEY ON SEPTIC WOUNDS*

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EGYPT

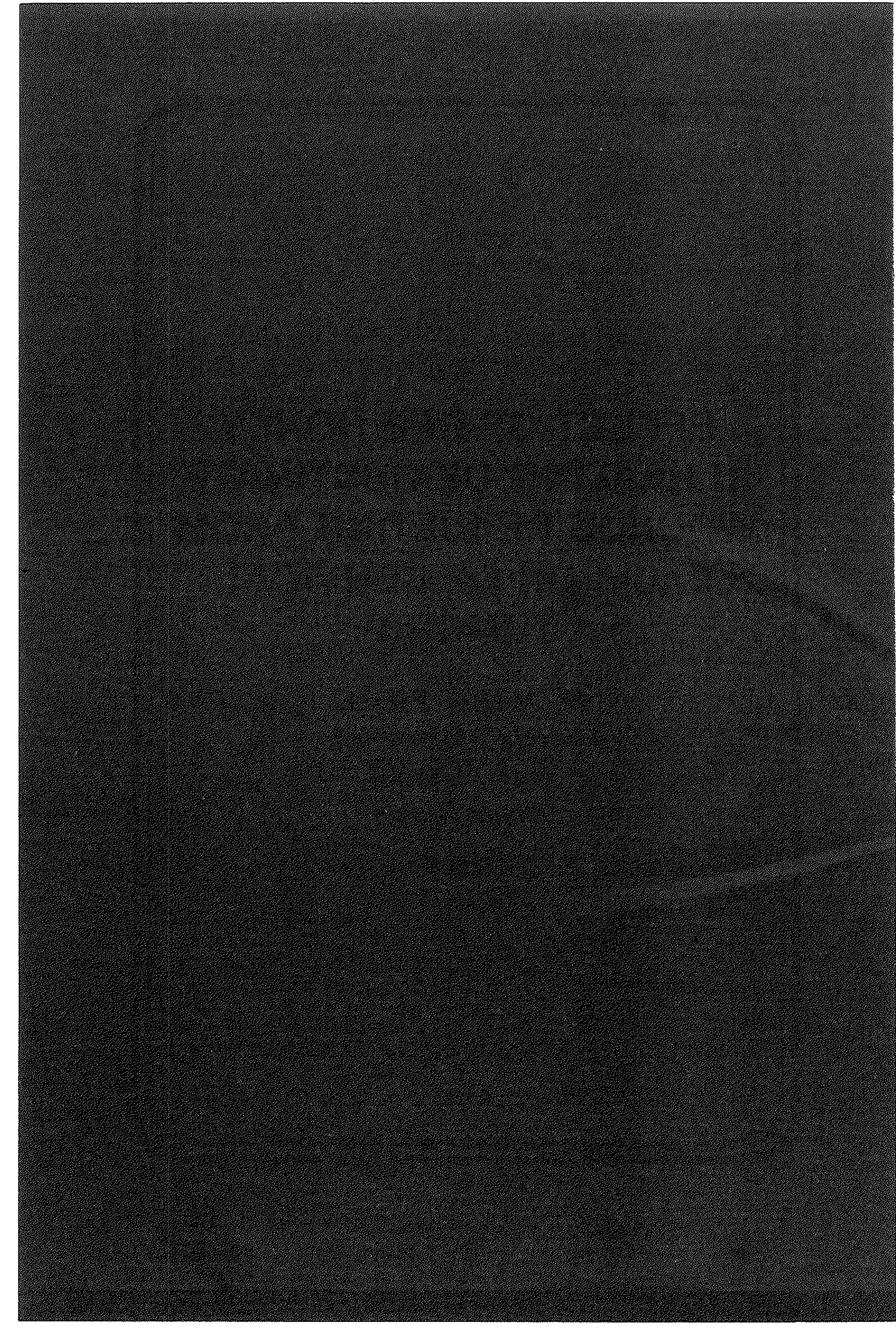
Fifty patients with infected surface wounds attending the Al-Ismailia Hospital were randomly selected and divided into two groups of 25 patients each. After thorough cleaning, the wounds of one group of patients were dressed with commercial honey while those of the other group with savlon. It was observed that with the application of honey, wounds became free of microbes faster than those treated with savlon, the mean periods being 5.68 and 7.27 days respectively.

* Taken from the Arabic version published in the Bulletin of Islamic Medicine, Vol. 5, 485, 1988.

EFFECT OF BEE HONEY IN HEALING OF OBSTINATE WOUNDS RESULTING FROM EXCISION OF CERVICAL TUMORS

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Suad Al-Sayed
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M. Al-Bahr Yermy, Mustafa Mohammad, Suad Al-Sayed and Osama Raslan

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The study was conducted on 11 patients suffering from indolent wounds following excision fo cervical tumors, associated with malnutrition, diabetes or from exposure to rays prior to excision which results into severe pertinaceous suppurative wounds. These patients did not respond, for four weeks, to any medication including the antiseptics and antibiotics. Thereafter, honey was applied locally and the progress followed clinically, bacteriologically and histologically. The result was amazing as after one week the wounds became aseptic, since no microbes could be isolated, and completely healed in 2-6 weeks. Histologically, the tissues became better, the blood vessels appeared and granulation occurred in 3 weeks time.

* Taken from the Arabic version published in Bulletin of Islamic Medicine, Vol. 5, 486, 1988.